Medical Lib.

Medical Times

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Foreign Bodies in the Eye

L. WEBSTER FOX, M.D., LL.D.
Philadelphia, Pa.

The entrance of a small foreign body into the cornea, while of no great dignity as compared with other affections of the eye, is a condition requiring a degree of skill in order to prevent a very simple condition from becoming one of more grave importance. Infection is always a possibility and an extremely small abrasion may become the site of a painful ulcer lasting over several weeks, with a scar resulting which may seriously affect vision. Or, the infection may be of such a fulminating character as to induce panophthalmitis and complete loss of the eye within an amazingly short space of time.

In the case of ever so small a foreign body in the cornea, sugical cleanliness is highly essential. Likewise the removal of the foreign body is of utmost importance. Not only should the offending particle (be it ever so small) be removed but its site should be clean cut. No ragged edge should be allowed to remain. In using the spud to remove these particles the edges of the wound should be cut to the uninjured cornea, since nothing makes for an infected ulcer as does a frayed-out area of injury. Ordinarily a clean wound is healed in 24 hours but it is problematical how long it will take for resolution when the ragged condition is allowed to remain.

The use of fluorescin for the determination of the location of the minute foreign bodies in the cornea is not without therapeutic value, since it has been shown that this preparation possesses some radio-active properties. Some surgeons go so far as to use it routinely in the treatment of corneal ulcers. Certain it is that its diagnostic properties cannot be questioned and one can with perfect safety determine the lessening (or increase) of the size of the diseased area from day to day by its instillation.

The removal of the small foreign body from the cornea assumes additional importance in view of the existing compensation laws. Such a condition may lead to inability to pursue one's usual vocation over a period sufficient to place the patient on the compensation list, while on the other hand prompt treatment may restore him to his usual occupation within a day or two. Some insurance companies carrying the workmen's compensation risks believe it to be economy to utilize the cheapest kind of medical attention during the early days of these injuries rather than employ the more skilled surgeons at a correspondingly higher rate of remuneration and thus cut down the period during which the patient draws benefits under the compensation feature of the Act. The instillation of atropin in such an injured eye, while it renders the affected eye incapable of close work and compels monocular vision, also reduces the period of incapacity by its good effect on the injured cornea. Also the application of an occlusive bandage, when not otherwise contra-indicated, will render the use of the fellow eye possible although limiting the field of vision, whereas the wearing of dark glasses in such a case adds an element of confusion, and thus interferes with careful work. An eye bandaged after removal of a foreign body and the use of atropin encourages the rapid restoration of the corneal epithelium. This latter treatment, however, is the better.

Foreign bodies that penetrate the cornea and enter the globe bring with them a host of complications, all making for the same end, that of destroying the eye and ruining the vision. Here we might digress for a

moment to refer to a most unusual type of gunshot wound recently observed.

A misguided individual with a perverted sense of humor saw fit to discharge a load of birdshot into a crowd of merrymakers on the street in a town in Delaware, on Hallowe'en, 1928. Except for the minor annoyances this caused several people, only one disaster attended this performance. A little girl under five years of age sustained a gunshot wound of one eye of a most curious character. One of the shot entered the cornea at the temporal side, just within the limbus. A prolapse of the iris into this wound followed. The missile then traversed the anterior chamber and emerged from the cornea at the nasal side just within the limbus at a point diametrically opposite the point of entrance, just as the von Graefe knife would do in the ideal section for cataract operation. The shot then passed through the ciliary edge of the cartilage of the upper lid and was lost.

The general traumatism coupled with the fright of the child and the concomitant crying prevented our expression of an immediate opinion as to the gravity of the situation. Under general anesthesia the examination revealed the true condition of affairs. The prolapsed iris was excised and atropin was instilled, and all the routine measures calculated to combat infection were instituted. An X-ray picture was taken to assure ourselves that no other foreign body was present within the globe. Within a week the initial reaction had subsided without infection and it was readily demonstrated that the lens had suffered no ill effects from the injury. The globe was saved and a high percentage of vision was conserved.

This is not the usual course of events. Injury to the iris or lens is almost a constant accompaniment, although the sequences are not constant. A torn or ruptured iris usually remains so, but a punctured iris such as results from injury as might be produced by a tack or a pin, may result in the curious condition known as cyst of the iris. These cysts are usually single although two may be seen at the same time. These are rather slow in growth and are limited in size only by the capacity of the anterior chamber. As this maximum is approached, glaucomatous symptoms supervene and incision is necessary. This is, in effect, an iridectomy, although frequently the iris collapses with the first incision so that only a small part of the iris is within reach and is removed.

The injuries sustained by the crystalline lens engage our serious attention to no little degree. The natural course of such an injury is towards full and complete opacification of the lens and loss of vision. Such a condition does not always happen. It is no uncommon thing for the metallic particle to pass through the lens, especially near the periphery, and lodge further back in the eye, leaving only an opaque tract through the structure. It may be very difficult to determine the exact factors that contribute to the maintenance of the clarity of the lens in these cases. The lens usually becomes uniformly opaque and requires to be removed sooner or later. Should it become opaque from injury sustained, the surgeon seeing the case after this has occurred should not be too hasty in promising restoration of vision after the removal of the lens. There may have been some concomitant injury to the vitreous or eyeground.

With the foreign body in the vitreous in a recent case, the situation possesses some features of supreme importance. The force that will drive a foreign body into the vitreous is often accompanied by a serious intraocular hemorrhage or some other grave damage. Also the likelihood of infection is extremely great since the vitreous provides a culture medium that will readily encourage the growth of any pathologic microorganisms. Consequently panophthalmitis is common.

Foreign bodies frequently become imbedded in the sclera at the posterior pole of the eye. Metallic foreign bodies within the eye coming under the observation of the ophthalmic surgeon within a few hours after the accident offer the best hope for removal by means of the magnet. The X-ray is an indispensable aid in these cases. The use of the giant electro-magnet before localization of the foreign body by this means offers an unnecessary amount of violence to the already injured organ. The modern X-ray technic permits a film to be made within an incredibly short space of time. The older technic called for the attempt to locate the foreign body immediately by the giant magnet. Any institution elaborate enough now to possess such an appliance has an equally modern X-ray plant and can give us the advantage of this method of localization and thus fortify our efforts at removal. The early use of the magnet was believed to lessen the danger of infection. This is open to augment, if, by early use, we mean groping about the eye with no definite idea as to where the foreign body is located. Even with the foreign body localized it is very often difficult to dislodge it with the magnet owing to its being surrounded by lymph or possibly firmly engaged in one of the structures of the eye. At times, even with the eye removed from the orbit, the magnet will fail to dislodge a foreign body until it is loosened by instrumental aid.

The technic of the magnet requires at times considerable ingenuity in order to assure ourselves we have utilized all the resources this apparatus affords. Thus the wound of entrance does not always afford the greatest encouragement to our endeavors, and it is necessary to make an artificial opening directly opposite or, as is usually done, between the two recti muscles of the opposite side of the globe. The tip frequently needs to be changed, the smaller being the more effective as a rule. Again, magnetizing a pair of straight forceps by placing them in the wound and applying the magnet to the proximal extremity or handle, may accomplish our objective. Care should be taken in using the high powered magnet to remove from close proximity anything that might be injured by becoming magnetized. Watches are especially susceptible.

In a recent case of a foreign body in the anterior chamber, partially engaged in the posterior layers of the cornea (which structure it had penetrated), we were successful in removing the offending particle through the wound of entrance with no additional injury to the cornea, although traumatic cataract did ensue from the original injury to the lens.

Foreign bodies within the eye are always dangerous. There are isolated instances, however, where small foreign particles have remained within the globe for a long period without having caused any reaction. We recall one case in which a small fragment of steel lay imbedded in the retina for a period of over two years. The tract made by the particle was readily visible by oblique illumination and by the ophthalmoscope, and the localization by the X-ray was definite. Except for the tissue damage along the tract of the foreign body the eye was uninjured and the vision retained was remarkably good. Such an outcome is most unusual.

The statistics furnished by those having a large experience with the large sized magnet create for the magnet operation an atmosphere of optimism which the occasional user of the instrument will find great difficulty in duplicating. While the suspected presence of a foreign body in the globe calls for a definite line of practice we should not expect too much from the measures employed. X-ray localization is at all times imperative.

After this the magnet should be given a good trial. The use of the giant magnet for purposes of localization, as is performed abroad, is not considered the best practice in this country. Some idea of the location of the foreign body should be had before attempting its removal. In all cases, the earlier the attempts at removal are made, the greater are the chances of its removal and also of saving the eye. Hemorrhage, infection, cataract, and scar formation, however, are possibilities at all times. Sometimes when one of the injured eyes goes progressively from bad to worse and the function is destroyed by the inflammatory changes, the reaction subsides, and the patient rejoices that he still has the eye although it is blind and useless. Such patients should be warned of the dangers lurking in such an organ. The surgeon's responsibility never ceases with these cases and he should urge the removal of such an eye before changes occur in the visual tract which are not within his control.

303 S. Seventeenth Street.

Ear, Nose and Throat Examinations from the Insurance Standpoint

Irving Wilson Voorhees, M.S., M.D.
New York, N. Y.

This is an important segment of the field of oto-rhinolaryngology, and its scope is constantly widening as the amount of business carried by the indemnity companies is widening *pari passu*. Some medical men assume that if they take a case for examination through reference from a carrier, they are obliged to render a report favorable to the company which pays the bill. Nothing could be further from the truth. In so far as I have been able to observe, not a single indemnity company, either by word, look or sign, has ever asked anything but the *truth* in any case. Carriers are perfectly willing and, of course, able to pay any sum in settlement of a claim provided it is reasonably backed up by facts; but they will fight any seemingly false claim to the last ditch, and justly so.

It is, therefore, the province of the rhinologist to determine facts as facts, and not to render an opinion which cannot be backed up in court if necessary. The examination should, of course, be thorough but not necessarily exhaustive unless a legal fight looms in view, in which instance the specialist must be prepared to answer any question which the opposing lawyer can manufacture after an exhaustive study of the text-books. If the specialist has himself contributed to the literature of his subject, he should review thoroughly what he has written, or he may find himself confronted by a statement from his own pen which is quite the opposite of his present opinion. One is prone to discount and forget what he may once have thought and said in favor of his mental attitude at this present moment. We all have to *un*learn many things because thought is in a constant state of flux, and we must change with it or we are obsolete. It is always a real help to a medical expert to have contributed something to the literature of his specialty, but he must keep his mind open to later developments and must follow current medical literature rather closely if he is to be of any assistance in helping to solve a difficult medico-legal problem.

There are, of course, many malingerers who will try to make a false claim. Sometimes honest persons quite unwittingly exaggerate a claim which has some basis in fact. For example, a man may have had noises and impaired hearing in an ear for some months, but he has paid very little attention to this condition until some injury about the head has emphasized it, and he now comes to the belief that the injury actually is the cause of the disability. Here is a "doctor's dilemma" indeed. How is an examiner going to determine whether an aural lesion was present preceding the injury? To do so requires vast experience and good, sound judgment. One must always be fair, and one must always be as sure as it is humanly possible to be.

Deafness following a head injury may, of course, be partial or total. Fortunately, the malingerer usually claims total loss in one ear; seldom in both. The Stenger test and the reading test are quite sufficient to determine total loss, but where partial loss is claimed, one must work out the percentage, perferably by means of the audiometer graph. It is rather difficult for the average patient to fool this machine; for if he tries to reason out what signal he ought to give, he is quite likely to botch it, and thus prove that he is unscrupulous. There is no reason to discard the old-fashioned tuning forks, as they are still reliable if used with intelligence. Some of the tests, such as the Weber, are unreliable, because they are intensely subjective, and admit the element of error or are inconclusive, but taken in combination with other clinical findings they are an indispensable aid.

It is often necessary to estimate loss of balance or impaired stance. To do this one must test the vestibular nerves. I have almost given up the turning test in these cases as it is difficult to determine in some instances, and the caloric serves one better. It is possible to have retained function in the auditory nerve with loss of function in the vestibular, and vice versa. Labyrinthine dizziness is usually combined with a sensation of turning, and if nystagmus (spontaneous) is present, the patient always tends to fall "away" from the nystagmus, that is, in the direction opposite to the major movement. A complete neurological examination should also be made to test the cerebral centers as well as the peripheral organs.

A lawyer brought to my office a woman aged 35 years. While preparing a meal in her apartment, a blast from an adjacent excavation operation blew a fragment of rock through the kitchen window which struck the woman on the left side of her head. She was found unconscious about twenty minutes after the accident and was removed to a hospital. The record described blood issuing from the left ear and abrasions of the scalp. In other words there was evidence of skull fracture, but nothing was said about loss of hearing. There was also no note as to suppurative discharge, so often observed subsequent to such an occurrence, and it is assumed that, through great good fortune, the middle ear did not become infected. After she had been returned to her home, however, the family noticed that she could not hear in the left ear. About this time she began to show signs of major hysteria bordering on insanity and became difficult to live with. When I examined her, she

had been in this condition for almost two years. The case was coming up for trial and the neurologist who had examined her suggested that she be brought to me for an otologic determination. She was extremely apprehensive, and it was only with great difficulty that I was able to examine her at all. But it was very easy to make out an old line of fracture through the superior wall of the auditory canal, now quite healed. There was not much difference between the look of this drum and the right save for the line mentioned. No evidence of suppuration past or present existed. The Bárány noise apparatus in the right ear associated with shouting in the left brought no response. When asked to read from a book while the noise producer was kept going in the unaffected ear she raised her voice to a high pitch. The apparatus was stopped and she read in a normal tone. The Stenger test with two synchronous forks was also positive. Therefore, one could say that the woman was totally deaf in her left ear, and it then became necessary to prove through various witnesses that she had always had equally good hearing in both ears preceding the accident. The case was settled out of court as it should have been; for there was no need to determine anything save the reasonable damage, which was, of course, compensatory rather than punitive, as no wilful neglect on the part of the contractor could be shown.

To illustrate a throat problem—a man while working in a cellar had the misfortune to have a stepladder fall against him and knock him down. When he recovered consciousness he was surprised to find that he was quite voiceless. An examination at the request of an insurance company showed a bowing of the vocal cords and complete aphonia. There was no organic lesion whatever. The diagnosis was laryngeal hysteria, and a good prognosis was given, but in spite of everything I did he did not improve. Finally, I sent him to an electrotherapeutist with instructions to use a sudden, sharp current to the external larynx, but this gentleman used the sinusoidal current instead to no purpose. However, while walking through the park on his way for further treatment, he was set upon by three men who robbed him of his watch and wallet. He was so frightened that he began to yell: "Police! Thief!!" and his voice promptly returned. Subsequent examination showed a normal larynx in every respect. This type of case is extremely difficult to explain medically, but it is important to recognize it on sight.

An iron worker was struck on the nose by a "flying beam" which got out of control. He claimed complete loss of the sense of smell and nasal obstruction. The deformity, which seemed evident enough, was not mentioned in his claim. Examination showed a very thick nasal septum which completely obstructed his nose, simulating septal abscess, but there was something about the look of it which suggested that we ought to have a blood Wassermann done. The report came back from the laboratory "four plus." Apparently the man had suffered knowingly or unknowingly from syphilis. The diagnosis limited the amount of compensation he received and the prognosis was, of course, good in so far as the damage action was concerned.

The written report which one makes to an insurance company should, in every instance, contain the file number as well as the patient's name and address. This is for purpose of ready reference, as the documents, enormous in number, are easily lost or misplaced if the filing of them is not done scientifically. It is not wise to put into this report too much technical detail, although the method and means of examination should be in the physician's notes. What the company wishes to know is not so much *how* the conclusions were arrived at, but just what is the *specialist's judgment of the case* after his examination and study of the findings are completed.

114 E. 54th Street.

Comparative Expenditures For Medical Care

The financial aspects of medical care are receiving so much emphasis of late that there is a distinct tendency to lose sight of the relationship of this question to other national expenditures.

The annual cost of nongovernmental medical services is approximately as given in table 1 and represents about 2.4 per cent of our national income.

TABLE 1.—*Annual Cost of Nongovernmental Medical Services*

	In Millions of Dollars	Per Family per Year
"Patent medicines" and drugs	700	$25
Physicians	650	24
Hospitals (nongovernmental)	380	15
Nurses, trained and practical	200	8
Dentists	150	6
Irregulars	50	2
	2,130	$80

Governmental expenditures provided out of taxation for medical and institutional care bring the grand total to about three billion dollars (3 per cent of the national income).

Studies of the expenditures for medical care in different economic groups have given figures of approximately $60 for the families of wage earners, $62 for those of farmers and $80 for those of office employees.

For the sake of comparison, the figures of expenditures presented in table 2 are of interest. The total represents about 13 per cent of the national income.

TABLE 2.—*National Nonmedical Expenditures*

	In Millions of Dollars	Per Family per Year
Passenger automobiles	4,000	$150
Tobacco products	1,800	67
Candy	1,000	37
Gasoline (noncommercial)	1,000	37
Theaters, movies, entertainment	930	35
Soft drinks, ice cream and gum	910	34
Jewelry and fur articles	780	29
Radios and musical instruments	440	16
Sporting goods, toys, games	430	16
Perfumes, cosmetics, toilet soap	410	15
	11,700	$436

These figures permit a number of interesting comparisons. The public buys what it is taught to buy, and a billion and a half dollars is spent yearly in that education through advertising. Three billions is spent each year in maintaining prisons, police courts, district attorneys and sheriffs and represents the direct cost of crime and its prevention. The value of goods stolen every year amounts to approximately the same figure. During the last ten years, the people of the country have scrapped automobiles for which they paid more than twelve billion dollars.

These figures are presented only to indicate the relative expenditures for medical services and not to minimize the facts that illness and disability are very unevenly distributed through the population and that the largest problem before the medical profession is to secure an adequate distribution of modern medical services to the entire population at a reasonable cost.—W. C. RAPPLEYE, M. D., in *J. A. M. A.*, May 31, 1930.

Peptic Ulcer

Active peptic ulcer probably is caused by multiple factors. Experimental data offer theoretical explanations of the causes of ulcer in the human being, namely; neurogenic influences, traumatic influences, and occult foci or infection. The activity of an ulcer seems to depend on the degree of free hydrochloric acid present. An active ulcer cannot exist in the presence of anacidity. Nonsurgical relief is possible by removing the inciting factors as completely as possible and by neutralizing, with a suitable diet and alkalis, the acid that is formed in spite of means to reduce secretion. The diet prescribed is free from chemical thermal, and mechanical irritating factors. Co-operation and good general conduct of the patient, together with continuance of a suitable diet and medication after leaving the hospital, for a period of months, are of vital importance in the ultimate cure. Of equal importance is removal of occult foci of infection.—*Hartmann, Calif., W. Med.*, Jan., 1930.

Why Dental Service is an Essential Part of Public Health Service*

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New York

Mr. Chairman, Ladies and Gentlemen: I should like to begin my remarks by expressing my appreciation of the invitation to address you on the subject of dental service as a part of public health service. My gratification is not personal, but rather on behalf of my profession. I wonder how many of you recall a time when the inclusion of this topic on a public health program would have been considered entirely uncalled for, the reason for this being the belief held by the medical profession for a good many years back, that oral diseases were purely local and without influence on the health of the body. When the dental profession, about twenty-five years ago, began to realize the significance of dental diseases, especially those forms which resulted in chronic pus formation, an effort was made to interest the medical profession in dentistry as a part of health service. I well recall, when I was chairman of the Oral Hygiene Committee of the New York State Dental Society, how little consideration was given this subject by physicians generally. Health officials here and there began to take an interest in this subject about twenty years ago, but there was still the thought that dental service was for the mouth, and health service was for the rest of the body.

In those early days of the oral hygiene movement, the attention of the medical profession was directed by dentists to the need of the individual for a clean mouth fitted out with a set of teeth adequate for mastication. In other words, it was assumed that the nutrition of the body required complete trituration of food in a clean, healthy, masticating machine, and this assumption is still held by the members of our profession. Dentists have also held for years past that pain of dental origin is an important cause of time lost from school or occupation, and should be prevented for this as well as for humanitarian reasons. We also have been of the opinion that aches and pains in the teeth tend to cause derangements elsewhere in the body, notably digestive disturbances.

These constitute excellent reasons for making dental service a part of the public health program. Yet, they lack the element of the spectacular which unfortunately seems to be needed before the effective interest of the public can be aroused in any propaganda, whether it be for a health program, reforestation, farm relief, or what not. We have to see people dying or at least mortally ill before we become aroused to the need for developing curative or preventive measures in their behalf. Nutritive disturbances, loss of time, even pain, fail to arouse us to action. Nor is this to be wondered at when we stop to think how many serious ailments afflict the human race, such as tuberculosis, yellow fever, cancer, and, of course, these and many other serious diseases have not even a remote connection with teeth.

It remained then for the discovery of focal infection to furnish the dentist with ammunition with which to compel those interested in community health to give thought to the teeth. Here we have, if such a thing we must have, the spectacular. Focal infections are the predisposing and also the activating factors, in a wide variety of diseases, many of which are either mortal or completely disabling. They are found distributed through a very large part of life's span, hence the problem concerns the young, the old and all between.

A few instances may serve to illustrate the gravity of infections of the teeth and jaws. A boy of seven was brought to my office some years ago having been referred by a physician. He had a serious and dangerous heart involvement which made it necessary for him to be carried even from one room to another. On examining him I found that all of the deciduous teeth were badly decayed, and most of them had developed abscesses from which pus drained into the mouth through fistulous openings in the gums. Although he was in no condition for an operation, it was decided that this operation was imperative, and I accordingly removed all of his deciduous teeth under nitrous oxide and oxygen. In a month's time he came back for a check-up. He was a totally different looking boy; his color was good; he was strong and was reported able to run about and play games with his schoolmates.

A girl of eighteen was another victim of heart trouble with kidney complications. She had been an invalid for years. X-ray examination revealed several infected teeth, which were extracted one at a time. Improvement was noted at once, but so serious had been the inroads on her vitality that it was several years before she made a complete recovery.

A young man in college was attacked by a disease of the eyes called glaucoma, a disease which, unless checked, causes blindness. At the time I saw him he had had two operations without the progress of the disease being materially checked. An infected third molar, or wisdom tooth, was discovered by means of the X-ray. When this was removed he began to make rapid improvement, and was soon reported to be free from danger of blindness.

Such cases are not rare. Dentists are constantly being called on by physicians to cooperate in the diagnosis and removal of dental foci of infection for people having varying degrees of invalidism. The problem involves the consideration of diseases such as heart trouble and kidney disease which frequently terminate fatally. It also is related to many diseases of a disabling nature, which cause loss of time from gainful occupation for the wage-earner, or incapacitate the housewife for her duties. Focal infections cause loss of time from school, and at the other end of life's span, they make the last years of the old a torment through pain and infirmity.

And, lest we forget, it should be mentioned that all of these illnesses cost money, not merely the loss of wages, or the cost of school retardation, serious though these are. The focal infection invalid requires medical service, for which somebody must pay. It may come as a surprise to some of you to know that focal infection cases are among the most expensive from this standpoint. They often require a complicated and therefore expensive diagnostic service, with resultant surgical operations of which several may be needed. They may eventually call for the service of specialists in one or more of the following fields—oral surgery, laryngology, rhinology, and abdominal surgery. Thus focal infection illness exacts a heavy toll in money as well as health.

Of course it is well known to you that infections in the tonsils, sinuses, and other parts of the body are on

* Address, New York Tuberculosis and Health Association, Nov. 21, 1929.

a par with dental infections as a cause of illness. So in making a plea for dental service as an essential part of public health service, I am not trying to put teeth in the vanguard of the public health program. All that I am endeavoring to do is to bring dentistry up from the rear guard to a place on the firing line. For dental infections are equally important with tonsil and sinus infections, and no uniform progress is to be expected in public health service as far as it relates to diseases in this group except when dentistry is given equal consideration with the other branches of health service dealing with this problem.

Dentistry may thus be seen to occupy a difficult position. The dentist holds an equal responsibility with the rhinologist and laryngologist, yet today because of a continuance of the older separatist attitude he is virtually excluded from an opportunity to share in endowments for research, without which he cannot make progress in the development of much needed knowledge in this field.

And now may I outline the problem of dental health service as I see it from the community standpoint. Here we find that the question has different aspects at different ages, hence we may well divide the community on an age basis. First we have the pre-school child; then the school child below the age of fourteen. Next comes the youngest wage-earning group, ranging from 14 to 25. After this there is no further division until we reach the age of 40. From 40 to 55 there is a period of transition preceding the advent of the period of senility. Please understand that these periods do not correspond to childhood, adolescence, maturity and old age as we ordinarily understand them. But we find that certain things tend to happen in the mouth at certain periods in life. And the types of dental service required will therefore tend to be classified according to these changing conditions.

The first five years of life constitute a formative period—formative, that is, for much of the permanent dentition. Nutrition at this time holds the stage, but correct oral health habits are also to be formed, and corrective care for the deciduous teeth is in order.

At six years of age the first permanent molar erupts, to be followed by the other permanent teeth at approximately yearly intervals up to twelve years of age. It is a period of rapid development of the permanent dentition and also of rapid skeletal growth. Nutritional care is of great importance. Quite as important, however, is an intensive preventive program using all available local agencies of a protective nature. We may logically add two more years to this period to bring it to the youngest legal working age.

And speaking of preventive measures I may say here that I perforce use the word "preventive" in a qualified sense. Many teeth of the children of today come into the mouth with certain defects, which inevitably lead to decay. Prevention here usually consists in detecting this caries in its earliest discoverable stage and correcting it by means of a filling. These fillings are usually small, easily inserted, and therefore relatively inexpensive. They give a high degree of protection from the further progress of caries, and are looked upon in a sense as constituting a preventive measure. Cleansing of the teeth by dentist or dental hygienist offers some protection, though not as much as was thought at one time. The tooth brush is now coming to be rated much more highly than in the past, especially when used to stimulate the circulation in the gums as well as to clean the teeth. The present status of preventive measures as we know them today is that they are worth while but leave something to be desired. On the other hand early correction of defects gives a high degree of protection and can be made to answer the purpose of prevention.

During the period of from fourteen to about twenty-five years of age, we still note a susceptibility to caries. Here nutritional care becomes of less avail in the attempt to control this condition, since the teeth are now fully erupted. The problem at this period is largely an economic one. The young boy or girl becomes a wage-earner, and as at first he or she must accept a small wage, this makes dentistry, by comparison with food and clothing, look very much like a luxury. During this period also the freedom of youth, of which we are hearing so much, blossoms out; home ties are loosened; and the young person is apt to assert his independence, for one thing, by neglecting the daily care of the teeth. In many people, the loss of teeth later in life can be traced to damage which had its inception between the ages of fourteen and twenty-five.

After 25 the teeth, to use a popular expression, seem to grow "harder." They are more resistant to caries. The average individual needs relatively less dental service, either curative or preventive, as far as decay is concerned. But now a new menace is to be found lurking in the background; this is the disease commonly called pyorrhea. However, pyorrhea does not show any marked symptoms during this period in the average case. But at about the age of forty, it begins to take its toll among those who have been counting themselves safe because of their lessened tendency to caries. This period then, of from 25 to 40 and up to 55 years of age, presents the problem of the building up of a defense against periodontal disease. This defense is developed most successfully in a mouth which has suffered no losses of molar teeth and especially the first molar teeth in the earlier years of life.

From 55 years on, we are apt to find either one thing or its opposite taking place. Either the teeth have survived earlier trials in satisfactory condition, in which case they may be kept in healthy condition to a good old age, or, what is more often the case, they have suffered so much damage of one kind or another, that the struggle to keep them in the mouth must be given up. And I may say that from the standpoint of a public health program, conservative efforts at this time, except for those blessed with unusually good teeth or the financial ability to command restorative operations of a complicated type, are worse than a waste of money. Artificial teeth are safer from the health standpoint and in the long run more economical.

The public health program then calls for the recognition of these classifications in the population and planning appropriate means for handling the problem of each group. To attempt to prescribe these programs is outside the scope of this address, but I hope the presentation of the problem may serve in part to demonstrate why dental service is an essential part of public health service. Perhaps I have not as yet really carried that point. If not, may I fall back on an article published in the New York Sun, November 19th, on Heart Disease as A Growing Menace. This is a report by the United States Public Health Service, and depicts in the most striking way the steady increase in the incidence of heart disease in this country and the relationship of focal infection originating in the teeth, tonsils and sinuses to certain forms of heart disease.

These statements coming from the United States Health Service are authoritative. Furthermore, they are free from the bias that is frequently and justly charged to special pleaders. What then is to be done about it? Cold, hard logic, quite as forcefully as the most impas-

sioned oratory, demands that dental service be made a part of public health service. In other words, if you consider tonsils important, you must consider teeth equally important. If you are going to spend money on tonsils, you must spend an equal amount of money on teeth.

Further Considerations Regarding the Therapeutic Value of Duodenal Sounding in Jaundice

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As our experience increases, owing to the number of patients with whom we deal, and following the criterion imposed on us during many years, the facts are each time more demonstrative with regard to the advantages of treating the jaundiced by duodenal sounding. We cannot suppress the satisfaction experienced on verifying these good results, and on noticing that a certain number of colleagues have abandoned their former criterion of operative interference, to return today to duodenal sounding, and, once the jaundice has disappeared, operate upon the patients under favorable conditions, when the clinical cases require it.

Notwithstanding, there are those who still operate upon the jaundiced because they consider surgery the most trustworthy method of combating bilious intoxication. We understand their preference, as they have not yet had either the experience or the perfect knowledge of the therapeutic importance of the duodenal tube.

In previous communications we have maintained that surgery should not continue to be selected as the treatment in the obstructive complications of lithiasis because it is well known that no matter how skilful and experienced the surgeon may be who operates upon patients suffering from these complications and in spite of the simplicity of the operation, he will not be able to avoid, under special circumstances, the serious complications which frequently occur. We have also been unanimous in maintaining that jaundice is the expression of an hepatitis and that both represent a clinical syndrome, with similar etiology, and under these circumstances we propose to expound some considerations from an anatomico-pathological and evolutional point of view, so that it may serve as a basis for our reasoning on therapeutics.

The gall-bladder and bile ducts, both the intra- and extra-hepatic, being connected by the same lymphatic network, that is to say, forming one and the same anatomical unit, it occurs that the acute gall-gladder inflammation reflects intensely upon the bile ducts, just as inflammation of the latter accompanies that of the gall-bladder and pancreas. The important work of Dr. B. B. Vincent Lyon supplies us with highly interesting knowledge regarding the evolution of those processes which injure the hepatic and bile tracts. According to this author the lesions are superficial in the beginning, but their prolonged evolution does not long delay involvement of the hepatic cells and bile ducts, causing the obstruction of the common bile duct and resulting in a catarrhal jaundice. In fact, if things are allowed to follow their natural course for a period of time, the reactionary pressure of the obstructed excretive system will cause extensive damage of the liver cells or the pancreas by defective functioning, and in a minor degree, lesions of the cystic and extrahepatic ducts. Similar phenomena and sometimes more serious ones occur with lithiasis of the common bile duct owing to the fact that, the gall-stone being a permanent factor of irritation, there is an increase in the virulency of the germs, whose chronic inflammatory effects invade the bile ducts and set up a real fibrosis of its walls.

We are also aware of the fact that histological studies made on fragments of hepatic parenchyma, extirpated during a cholecystectomy, have put in evidence the presence of hepatitis lesions, thus demonstrating that the inflammation of the bile ducts spreads beyond their limits to affect the parenchyma.

Having briefly presented these considerations in reference to the evolutional process of cholecystitis, and its consequences on the canals and hepatic cells, it is conceivable that biliary lithiasis cannot be considered as an exclusive affection of the gall-bladder, because in some cases cholecystectomy does not furnish any definite benefits to the patient.

As the spirit of this contribution refers solely to the cases of cholecystitis with *jaundice complications*, we propose considering only this question exclusive of all others, in order to avoid errors of interpretation which may deviate us from our subject.

There is a classical method which solves the therapeutic problem of the biliary obstruction, by bringing the bile either towards the exterior by means of cholecystostomy or by drainage of the hepatic duct through the anastomosis of the gall-bladder to the stomach or to the intestine. Regarding its results we can refer to the numerous statistics at hand, and we certainly do not ignore the grave complications to which the operated patients are exposed. Consequently we can affirm with all scientific honesty, and consciousness of the point at issue, that through duodenal sounding most of the obstructions are cleared, excepting those whose obstruction is caused by cancer, stricture, or stone impaction. We also can assert that the patients treated by the duodenal tube escape the complications observed in cases when operations are performed on patients suffering from jaundice; and that when the former case calls for an operation, it is done under most favorable conditions, when the biliary intoxication has disappeared. We may again bring to memory what we expressed in former papers, in regard to the urgency of operating upon patients suffering from jaundice, that we deny the alleged urgency, unless phenomena of serious infection alter the prognosis of the case. We remark, however, that fever does not always indicate the absolute necessity of an operation. Lyon's vast experience with a series of cases of angiocholitis cured by the duodenal tube cannot be overlooked. We, on our part, have also dealt with some cases, one of which calls for our comment, as follows:

A. F. J. G.—Argentine, aged 56 years.

Hereditary Antecedents.—Father died, aged 74 years, of hepatic tumor.

Personal Antecedents.—Had measles in his infancy; grippe several times in a mild form; he has not had any venereal disease; does not smoke or drink. Some 30

years ago he suffered from a feverish condition not clearly established and lasting about one month.

Actual Disease—Distant Antecedents.—For the past 15 years he has been getting some slight disorders, which nearly always made their appearance after substantial or heavy meals, characterized by sensations of heaviness and epigastric fulness. These symptoms would subside after some time, occasionally after several hours. During the last eight years these complaints have been more frequent and the patient has attributed them to indigestion. They did not prevent him from living his ordinary life, however, and hence the reason for not consulting any doctors.

Recent Antecedents.—On the 2nd of June, 1926, he suffered intense pain coming on after his meal. The pain localized itself in the right hypochondrium under the short ribs, and was accompanied by gastric symptoms and fever. For ten days he was bedridden with an ice-bag applied to his right hypochondrium. On this occasion the conjunctivae assumed a yellow color, and the urine was scant and reddish. Since then he has been under medical treatment, a diet having been prescribed. Notwithstanding, he has since suffered various crises similar to that mentioned above but of less intensity.

Since the month of September, 1928, he has suffered, almost daily, pain in the gall-bladder region, which is felt about three hours after meals. The pain is not very acute, but its persistency, and the dyspeptic symptoms which accompany it, upset the patient's nourishment to such an extent that his weight, which was 98 kilograms, was 10 to 15 kilograms less on the first of December. At this time the pain became more acute, attended by fever, diminished urinary output of high color, the skin and mucous membrane gradually assuming a yellow tint.

After the 15th of December he kept to his bed. Fever, deep color of the urine, decoloration of the excrements, evident jaundice, and pronounced thinness were the symptoms which completed the clinical description of the patient. Upon physical examination we found an enlarged liver, and the existence of an extensive puffiness in the gall-bladder region, with marked tenderness. Treatment: cholagogues, choleretics, biliary antiseptics and therapeutic protein. Far from improving, the obstructive symptoms of the common bile duct became accentuated and fully developed during the last days of December until the 6th of January of the current year. For a week the symptoms subsided, the faeces gained color and the high coloring of the urine became somewhat less. The temperature remained practically normal. On the 12th of January there was an elevation of temperature with notable aggravation of the signs of obstruction. The temperature ranged between 38° and 39° C. The urine was scanty and had the color of dark beer. The stools were totally acholic, the jaundice a generalized greenish-yellow. There were pruritus, prostration, adynamia, and hyposthenic pulse with extrasystoles. When the jaundice appeared the chief of service suggested medical drainage of the bile ducts. As his clinical state became aggravated, and the symptoms of obstruction and infection persisted, the patient, after a consultation in which we took part, finally agreed to begin the treatment. It began on the 22nd day of January; up to the previous day the temperature rose during the evening to 39°C. During the first sounding, which lasted about three hours, only some 100 mils. of a clear duodenal liquid were extracted, 150 mils. of a solution of sulphate of magnesium (30%) having been instilled. That evening the evacuations were plentiful, pasty and of a color resembling clear tea with milk. The fever descended to 37.3° C. The following day a second sounding was effected, of the same duration, and after instilling the sulphate of magnesium, a clear liquid was extracted with numerous yellow flakes. On examining them, by aid of the microscope, it was found that these flakes consisted of numerous globules of pus, yellow-stained by bile, and of cells from the bile ducts, likewise stained by bile. That evening the faeces were abundant and of the same color as the previous day. Fever 38.4° C., sweating, urine very dark.

On the 24th the third sounding was effected, 250 mils. of an absolutely bilious liquid being extracted. From that day forward, the fever steadily abated, the stools recovering their usual color. The pruritus disappeared rapidly. During the following days the medical drainage of the bile-ducts was continued, the patient having quickly accustomed himself to the sounding, which was maintained from 7 to 12 o'clock; say, from four to five hours. During this time two instillations of a solution of sulphate of magnesium (30%), of 90 and 60 mils. respectively, were effected; the duodenal mucosa was washed with water, and before withdrawing the tube 300 mils. of skimmed milk were instilled. The quantity of bile extracted in each sounding varied from 600 to 1,200 mils., being greenish-yellow in color and containing an enormous amount of purulent particles the first 15 days. The improvement initiated became permanent gradually. The detoxication of the patient was effected rapidly and the urine assumed its normal color after some 20 days. The jaundice continued to disappear in the same way, only persisting in the conjunctivae. On some occasions a rise in temperature was noticed, which always coincided with signs of obstruction, diminution or absence of bile in the drainage, darkening of the urine, and a slight decoloration of the stools. After the sounding, the patient was nourished with carbohydrates. For 45 days the drainage was effected in the form already mentioned, excepting that the quantity of sulphate for instillation was reduced to 90 mils. after the first seven days.

It is interesting to draw attention to the quantity of duodenal biliary liquid extracted, exceeding 60 litres, without causing any disorder in the nourishment or general state of the patient.

On the contrary, the prostration noticed when initiating the drainage, which prevented him from moving in bed, began to progressively disappear, and in a more pronounced manner, depending upon the amount of food. The weight curve showed a rise of nearly 10 kilograms since the inception of the treatment. The treatment in this case was complemented by an autogenous vaccine, prepared from a culture of the germs found in the bile, in which the colon bacillus and streptococcus predominated. Three series of vaccine of gradually increased concentration were administered. Sometimes the injections caused a local reaction, and also a gall-bladder reaction, manifested by a moderate rise in the temperature. The rises in temperature coincided generally with a state of inflammation in the hepatic region, gastric disorders and anorexia, these phenomena gradually lessening with the lowest intensity being noticed on the last day of April. After that date they completely disappeared, and the patient was free from the symptoms of which he had complained. The bile now extracted by sounding is of a golden yellow color, and contains very few particles of a purulent nature, these improvements in the appearance of the bile coinciding with the subjective and objective improvement of the patient.

Judging from the history given by our patient we believed, at first, in the existence of a cholelithiasis such as presents itself in the common bile duct, and considered the possibility of a surgical operation to clear the

obstruction in the bile ducts. The age and existence of both an aortitis and a myocarditis were factors which militated against this procedure, let alone the opposition of the patient. The success obtained through the first soundings encouraged the continuance of this treatment, which finally not only terminated the jaundice, but also postponed an operation which seemed unavoidable.

In conclusion, and always in accordance with the data supplied by the duodenal tube, our patient was suffering from suppurative angiocholitis, the lithic origin of which we were unable to ascertain. As may be seen, this case is quite eloquent, inasmuch as it confirms, in a categorical manner, the efficacy of a conscientious treatment and a methodical observation. In our estimation there is no question that duodenal sounding is superior in its immediate results to surgery in the treatment of inflammation of the common bile-duct with the complication of jaundice.

In regard to the later results, we can now present only two cases of jaundice with relapse; one after two years and one after five years. These patients, after improving with the application of soundings, had been advised by us to submit to an operation, as we believed in the existence of a stone in the common bile-duct. Up to the present both have ignored our advice.

There is one point to which we would like to draw attention, and that is in reference to the use of the "transduodenal drainage" proposed by Duval, so as to use the bile rejected by the external drainage. We consider this method as a surgical phantasy, in which the imagination of the surgeon-author is in contrast with modern knowledge and improvement in surgical technic. In all our other works we have always emphasized that the surgical drainage of the bile ducts should be no other than the classical external drainage, because we consider it the most scientific, and because, during our sixteen years of experience in the surgery of the bile ducts, we never have come across any of the inconveniences announced by Duval and his school as compromising the general state of the patients. Duval has misunderstood, and what he interprets as serious symptoms due to lack of bile internally, is in our opinion nothing else but the symptoms of hepatic insufficiency in patients who had been operated upon for jaundice, or corresponds to a state of insufficient functioning of the liver.

Three arguments may be invoked to prove the want of reasoning in regard to transvaterian drainage:

1st.—The drainage of the hepatic and common bile duct with the T-tubing never effects the total external extraction of the bile.

2nd.—We are daily taught by experience that the deeper the jaundice the greater are the results obtained by the exterior duodenal bile tube, and the greater the necessity of a prolonged drainage. The cases are numerous in which it has been possible to drain up to 1500 mils. in 24 hours; and,

3rd.—Possibly the most valuable is that in reference to the "vicious circles" of Lyon, in which that author lays down his basis of interpretation of the morbid mechanism of the individuals suffering from chronic affections of the bile ducts Lyon believes that three "vicious circles" exist; the first is out of our question; however, through the 2nd and 3rd is explained the why of the pre-existent hepatitis in some of the operations of biliary lithiasis, and the way to treat it. He observes that "the liver and bile ducts, in a state of residual infection, continue emptying the infected toxic bile into the duodenum, passing through the intestine, from where it is discharged with the faecal matter." The infection, in this manner generalized in the intestine, provokes in many cases disease in the mucosa, that is, a colitis. The second "vicious circle" consists in the reabsorption of the bile, through the intestinal walls, by the mesenteric veins, which empty into the portal carrying it to the liver. A certain quantity of poisons make their way through the hepatic veins and the inferior cava to the right ventricle of the heart. But, the greater part, which followed the aforementioned route, is ejected anew through the liver and reabsorbed a second time by the intestine. Things occur more or less in the same manner in the case of the third "vicious circle", with the exception that the toxic elements pass through the mesenteric vessels, which empty themselves into the "receptaculum chyli," then follow the thoracic canal and finally reach the left subclavian vein; on the right, the lymphatic terminal collectors, jugulars, subclavians and broncho-mediastinals open separately or jointly into the jugular angle and the right subclavian. On the one side as on the other, the lymph, charged with toxic elements of visceral origin, finally mixes with the blood, to ultimately attack the heart, and in this way the blood, full of toxic matter, exercises an injurious action on the tissues. The organs which have received such an obnoxious irrigation have their venous blood charged, not only with the eliminating products, but also with toxic infectious elements contributed by the arterial blood. The veins of these organs carry very undesirable materials to the portal system, which enter the liver, and aggravate the cellular alteration therein, being finally expelled again.

These are, therefore, the three reasons which induce us to reject Duval's method as an efficacious resource for the drainage of the bile ducts. We have had, up to the present, fifty patients with jaundice treated by us with duodenal tubing; three of them belonged to our private practice, and the remainder to our ward in the Rivadavia Hospital. Twenty-six were submitted to surgical operations, having been previously treated by duodenal drainage, and the remaining twenty-four were treated by duodenal sounding only. In the patients belonging to the first group, the application of the duodenal tube showed absolutely negative results in five of them, it being established by the operations performed that one was dealing with cases of cancer of the head of the pancreas and of the bile ducts; in the other cases the medical drainage of the bile ducts helped to clear them completely, the patients being brought to the operating table in the best condition, and showing no postoperative complication of any importance.

Of the patients belonging to the second group, three of them passed stones, becoming relieved of their obstruction, and showing such an improvement that they refused a surgical procedure; three had jaundice, caused by a neoplasm in the biliary ducts, the clinical diagnosis being confirmed by the necropsy; the remainder, numbering eighteen, were cleared by medical drainage, and were left in good condition without the need of operation. Many of the latter had evident symptoms of biliary lithiasis. We herewith summarize, in the following table, the aforementioned cases:

Patients Operated	
Chronic Pancreatitis	2
Chronic Cholecystitis	1
Strawberry Gall-bladder	1
Chronic Calculous Cholecystitis	7
Lithiasis of the Gall-Bladder, and Hepatic and Common Bile Ducts	10
Cancer of the head of the Pancreas	1
Cancer of the Bile Ducts	4
Patients Not Operated	
Lithiasis of the Common Bile Duct, (verified by the elimination of calculi)	3

Cancer of the Bile Ducts	3
Hepatitis, Angiocholecystitis, Biliary Lithiasis	18

Finally, and in accordance with our experience and observation, we have arrived at the following conclusions:

First—That the icteric syndrome, as a complication of cholecystitis, is the net expression of the insufficient functioning of the liver, and that its presence does not always indicate that the cause corresponds to the existence of calculi in the bile ducts.

Second—That the therapeusis needed in those cases is that which will least compromise the injured organism.

Third—That at present the duodenal tube is the therapeutic method which furnishes a greater security for the life of the patient, and much information for the physician.

Fourth—That by its use, not only the disappearance of the jaundice is obtained, but it is also possible to know whether the biliary obstruction is caused by an intrinsic or extrinsic lesion.

Fifth—That on this account, the *total absence of bile* is for us a positive sign in favor of neoplastic pressure on the bile ducts.

Sixth—That the majority of patients can be operated after the jaundice has completely disappeared, because they always have a favorable reaction due to duodenal drainage.

Seventh—That when the case permits of operation cholecystectomy should be performed. The external drainage of Kehr, in case drainage of the bile ducts is required, should be employed.

Eighth—That our common sense rejects surgical procedures which only complicate this problem.

Ninth—That the disorders which may present themselves, after the intervention, should be interpreted, in most cases, as symptoms of "preexistent hepatitis", and that the treatment should be detoxication through the duodenal tube.

Cysts of the Thyro-Glossal Duct*

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Thyro-glossal cysts are always due to an embryological defect and are seen rather infrequently. W. E. Sistrunk reports thirty-one cases in 86,000 admissions to the Mayo Clinic, which were either thyro-glossal cysts, ducts or fistulas. Klingenstein and Colp report forty-two cases admitted to the surgical wards of the Mount Sinai Hospital. At the Clearfield Hospital six cases are reported in 16,000 admissions, three of which were operated upon.

In the meso-branchial field just in front of the second groove a median invagination of the walls of the pharynx appears forming a depression which becomes deeper and deeper and finally forms the thyro-glossal duct. At the lower end this duct bifurcates forming two terminal buds which proliferate into a glandular organ which later becomes the thyroid.

In the embryo the thyro-glossal duct leads from the foramen cecum at the root of the tongue through to the posterior surface of the hyoid bone and thence downward and forward to the isthmus of the thyroid gland. It begins to atrophy in the fifth week and is obliterated by the eighth.

During early foetal life the thyroid gland develops at the base of the tongue and passes downward in the midline of the neck to its normal position. The tract through which it passes is lined by epithelial cells and normally the tract is obliterated but should this not occur then a cyst develops. A thyro-glossal cyst may be formed anywhere in the tract from the foramen cecum to the body of the thyroid gland.

Thyro-glossal cysts and fistulas result from the persistence of the thyro-glossal duct either partly or entirely. A persistent thyro-glossal tract may give rise to three varieties of lesions:

1. Thyro-glossal cyst.
2. Thyro-glossal fistula.
3. Solid tumors—benign.

Thyro-glossal cysts are the most common and may be found above the hyoid or below it. They vary in size and shape, but are seldom larger than an egg. They may be round or oval and as a rule are attached to the hyoid bone. They develop usually in the first three decades of life and most frequently are observed at puberty. As a rule they are painless to pressure.

The cyst itself gives practically no symptoms, only when it becomes inflamed does it cause trouble. It either inflames or breaks of its own accord, discharging externally. At times it almost heals, then the contents accumulate and a cyst forms which again breaks and a sinus results as before. The walls of the cyst vary in thickness according to the amount of inflammation present. The lining epithelium is of the cylindrical type, very often ciliated, while when inflammation has taken place the epithelium is more or less destroyed.

Thyro-glossal fistulas are usually the result of the cyst having spontaneously ruptured, or follow surgical opening. The external opening of the fistulas is between the hyoid bone and supra-sternal notch. Occasionally the walls of the fistula are so thick that they can be palpated. A characteristic of thyro-glossal cysts and fistulas is to be always median, a feature which will distinguish them from tumors and fistulas of branchial origin which are always lateral.

The clinical histories of the patients forming the basis of this report are as follows:

Case 1. W. N., was admitted to the hospital complaining of a lump in his neck which had been present for about six months. Physical examination revealed a well nourished male with a cystic mass in midline of neck that was smooth and which could readily be outlined. The patient was prepared and two days later the cyst was removed by Dr. S. S. Waterworth. He also had a right herniorrhaphy done at the same time. The wound healed completely in five days.

Pathological report—microscopic examination: There is a dilated channel lined by cuboidal epithelium. The wall of the canal is very thick and fibrous.

Case 2. A. B., was admitted to the hospital with a history that a year ago the child developed a boil under the chin which was poulticed, opened and discharged thick, stringy mucus. Shortly after being closed the mass again gradually returned. Physical examina-

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tion revealed a well nourished male, normal except for a large cystic mass at the under surface of the mandible. The mass was smooth and readily outlined. The patient was prepared and the next day the cyst was dissected out completely by Dr. S. S. Waterworth. The wound healed within four days.

Case 3. R. M., was admitted to the hospital with

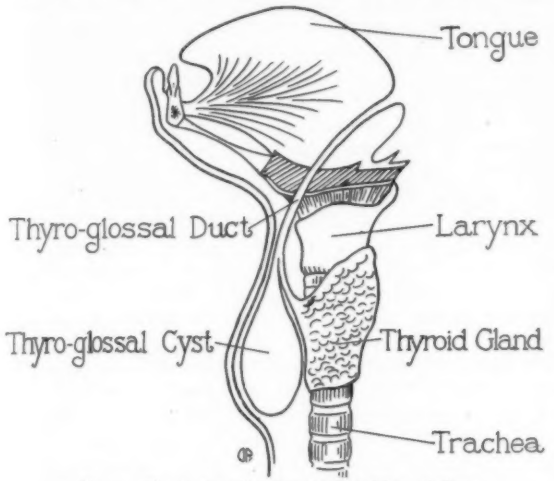

Fig. 1. Illustration Showing Lateral View of Cyst.

the history that a year ago he noticed a soft lump on the under surface of the jaw which gradually had been enlarging and recently had been causing embarrassed respiration, especially under exertion. Physical examination revealed a well nourished male, normal except for a soft, cystic mass in the median line of the neck. The patient was prepared and two days later the cyst

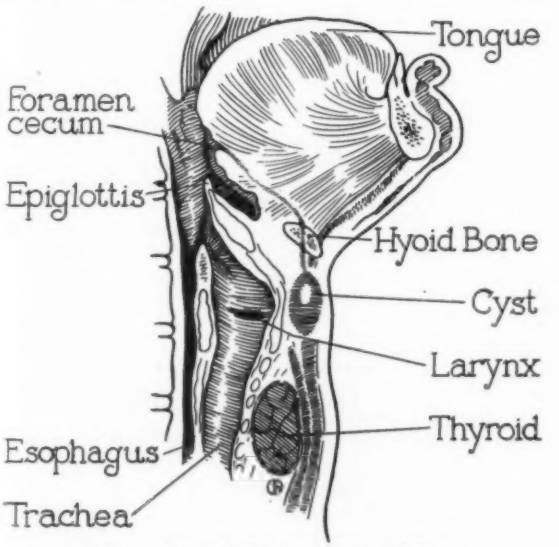

Fig. 2. Anatomic Details of Duct and Cyst.

was dissected and removed by Dr. S. S. Waterworth. The wound healed in four days.

Pathological report—microscopic examination: Section consisted of dense scar tissue, striated muscle and columnar epithelium lining a duct.

Operation: In order satisfactorily to remove a cyst or tract of the thyro-glossal duct the operator should be familiar with the fundamental anatomical structures concerned with the tract and its embryological formation. The patient is prepared as for thyroidectomy and the neck is put in the same position of extension. A transverse incision about six centimeters long is made over the cyst. The skin, subcutaneous tissue and platysma muscle are divided, followed by the incision of the median raphé longitudinally in order that the cyst can be dissected free. A needle is thrust into the cyst so that fluid can be aspirated. After completely removing the fluid, the needle is left *in situ* and a solution of methylene blue is injected so that the cyst is filled. On removing the needle, the opening made is closed by the use of a hemostat. Dissection can now be accomplished as the dye can be seen throughout the course of the tract. The ducts of these cysts are small and delicate and are easily broken. Wide dissection is the secret of success in removal.

After the cyst is removed the opening in the muscles is closed and the bone, if cut, is brought into apposition with a few chromic catgut sutures. A drain should be left *in situ* which may either consist of a piece of rubber tissue or a small tube which should pass underneath the muscles. The skin may be closed with clips. The drain should be left in four to five days.

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Trachoma and the American Indian

Science has come to the aid of the American Indian and is now engaged in preserving the redskin's eyesight.

A century ago, it was the white man's wish to see every Indian bite the dust, as the dime novels expressed it; today, the white man's government is exerting strenuous efforts to keep sand and dirt out of the Indian's eyes.

Trachoma, the dreaded disease of the eyes which is marked usually by granulated eyelids, has afflicted the southwestern tribes for many years.

A marked reduction in the incidence of trachoma on the Indian reservations of Arizona and New Mexico is noted in a recent report from the United States Public Health Service received by the National Society for Prevention of Blindness here.

Surveys conducted in 1928 among 11 southwestern tribes disclosed that the substitution of the ophthalmologist for the medicine man since a similar survey was made among the same tribes in 1912 had brought about a reduction of approximately 64 per cent in the incidence of trachoma. Of the 4,700 Indians examined in 1912, more than 24 per cent suffered from trachoma, whereas less than nine per cent of the 6,700 Indians examined in 1928 showed symptoms of trachoma.

"The best results, as might be expected, have been obtained among the Pueblos, Hopis and Zunis," the report states. "These Indians, living in villages, are readily accessible, and, being in a higher stage of culture than the nomadic tribes, are more amenable and cooperative.

"Field work by ophthalmologists among adult Indians of the nomadic type is unsatisfactory and usually a waste of time. Such Indians come only for a relief of the subjective symptoms and disappear as soon as this has been accomplished, long before a cure has been effected. It is the policy of the Indian Bureau to use persuasive measures only and to avoid all coercive efforts, which would only antagonize the Indians and defeat our aims.

"Increase of congressional appropriations permitted in 1924 the first real organized effort against trachoma and other eye diseases. Seven ophthalmologists and 13 nurses were assigned to specified districts in the Indian country. Trachoma clinics were held and instruction was given to agency and school physicians on the diagnosis and treatment of trachoma. Appropriations applicable to health work have increased from year to year, the number of specialists and nurses has been augmented, districts have been made smaller, and hospital facilities increased.

"While the origin of trachoma among the Indians can not be proved, there is considerable basis for the belief that it was introduced by the early Spanish settlers."—*Nat. Soc. for the Prevention of Blindness.*

Chronic Intestinal Toxemia and Its Treatment*

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The subject of Intestinal Toxemia has generally not received as prominent a place in the physician's mind as is its due. The reason for such a failure of deserved prominence is probably to be explained by the varied and elusive symptomatology and the absence of spontaneous and spectacular cures. Other diseases of the gastro-intestinal tract, e.g., gastric ulcer, carcinoma, gastrectasis, appendicitis, acute or chronic, gall-bladder disease, etc., have all been glorified by the surgeon, the roentgenologist or by both.

The intestinal tract with its 20 feet or more of length varies in certain portions as to structure, glandular distribution, size of its lumen, and the physical and chemical consistence of its content. The food, as it leaves the stomach only partially prepared for absorption and osmosis, undergoes many chemical and physical changes as it passes through the bowel. Many substances are added to this mass and much of it is absorbed in the various portions of the bowel until the residue is discarded through the anus. The kind of food ingested, and the activity of the various secretory and absorbing glands of the gastro-intestinal tract with its nerve supply and its peristalsis, all contribute to the physical and chemical composition of the bowel content. Since so many and varied factors enter into the formation of the pabulum for absorption, it may readily be conceived how easily the composition of this pabulum may be disturbed. The entire organism depends upon the proper absorption and assimilation of the food prepared in the gastro-intestinal tract; therefore, a food ill-prepared for digestion must of necessity react unfavorably upon the organism, the severity of the reaction depending upon the shortcomings of the pabulum.

Chronic intestinal toxemia is probably the most common of all ills; it runs a protracted course and manifests a varied symptomatology which ranges from vague signs of mild intoxication to definite evidence of severe constitutional toxemia.

Etiology—the etiology of chronic intestinal toxemia is varied, depending upon three factors—1. Physical. 2. Chemical. 3. Biological.

1. *Physical*—The physical factors contributing towards the production of chronic intestinal toxemia are: (a) Malformation of the stomach and bowel interfering with proper movement of their contents along the gastro-intestinal tract; chronic adhesions at the various portions of the bowel; ptosis; kinking; redundancy of the colon or other portions of the bowel. (b) Inflamatory reactions due to gastric, duodenal, pancreatic and gall-bladder disease and to disease of the intestinal mucosa. (c) Abdominal tumors, large hernias and ascites by causing displacements and crowding. (d) Faulty innervation of intestinal and abdominal musculature. (e) Imbalance of the sympathetic nervous system, and (f) Other conditions that may interfere with normal peristalsis, thus causing stagnation and putrefaction.

2. *Chemical*—The chemical factors may be briefly summed up as follows: (a) Improper food—either poorly balanced as to its carbohydrates, protein and fat content, or food which is indigestible. (b) Spoiled food and drink that may cause inflammation of the mucosa or poisoning. (c) Insufficient, altered or disproportionate outpouring into the intestinal canal of digestive ferments by the various secretory glands. (d) Faulty assimilation of the prepared pabulum causing stagnation or certain chemical changes in the amino-acids with the formation of toxins.

3. *Biological*—The biological factors operative in the production of chronic intestinal toxemia may occur in conjunction with the physical and chemical factors mentioned, or may constitute an independent factor. Parasites such as round-worms, tapeworms and others which produce toxins or act as a mechanical hindrance may at times cause severe gastro-intestinal disturbance. However, the most important etiologic factors to be considered are the various bacteria, of which the colon bacilli are the worst offenders. The normal habitat of colon bacilli is the large bowel, where they elaborate substances which inhibit the action of putrefactive bacteria such as the *Bacillus putrificus coli,* and assist in carbohydrate oxidation, fat decomposition and fermentation, acting as saprophytes in health. In diseased conditions of the bowel or in the presence of a bowel content which irritates the colon bacilli, they become distinctly pyogenic and cause not only local damage but may be transported to distant parts of the body, i.e., to the peritoneum, the genito-urinary tract, the respiratory tract, the meninges or the middle ear.

Dr. John B. Deaver has repeatedly stated in his clinics that the colon bacilli isolated from a diseased colon are more virulent than those from a normal colon. It is, of course, a question whether the diseased colon causes greater virulence of the colon bacilli or the virulent colon bacilli produce disease of the colon. However, Adam, quoted by Satterlee (1), says: "Under ordinary circumstances the B. coli is incapable of forming ectotoxins, but when the intestinal mucosa is affected by traumatism from within or without, the B. coli may wander and cause inflammation and thus liberate toxins." The late Dr. Ernest Laplace usually stated in his lectures concerning the colon bacillus: "A colon bacillus on the warpath is the most erratic organism in existence. No one may foretell just what it is going to do." An apparently benign colon bacillus may under certain circumstances become a malignant factor in causing severe disease.

Symptomatology—The symptomatology of chronic intestinal toxemia depends upon two main factors:

(1) The quantity of toxic material absorbed by the patient from the gastro-intestinal tract.

(2) The individual's susceptibility to specific toxins.

The reaction of the individual to certain autogenous toxins largely determines his symptom complex. In discussing this subject Thomas R. Brown (2) of Baltimore, states: "When toxic symptoms are spoken of, debatable ground is entered upon and yet certain of the symptoms met with in these cases are explicable only on this basis. What is the cause of these toxic symptoms? Is it a toxin normally present or in excess? Has the protective mechanism become insufficient, possibly due to repeated mild anaphylactic reactions, or is there a tendency toward an overgrowth of certain bacteria, and may immunity be brought about in time? Whether these toxins are derivatives of the amino-acids cannot be said, but it is striking what slight changes in molecular constitution are necessary to convert the normal bases into products

*(Read before the Southeast Branch of the Philadelphia County Medical Society.)

of great toxicity, and it is certainly possible that this may be brought about by the proteolytic intestinal bacteria. The work of Eppinger and Guttman in isolating two ptomains from the stool, one producing urticaria, the other asthma, is extremely suggestive in this connection." Whether these toxic anaërobes are always present in the bowels in minimum amount and are increased by an ill-functioning gut, or whether they are swallowed or in any other way brought to the gastro-intestinal tract from external sources such as tainted foods, pyorrheal pockets, infect lung foci, etc., is not always determinable. Normally, certain toxins are constantly present, which are detoxified by the digestive and metabolic processes in the gastro-intestinal tract. Under certain conditions these toxins increase in quantity or are altered in composition so that the natural detoxifying processes are inadequate, thus causing their presence to be manifested by a train of symptoms and physical signs.

Many of the toxic symptoms thus produced may be explained by the theory of anaphylaxis because of congenital or acquired hypersensitiveness to certain proteins or to products elaborated from them during digestion, fermentation or putrefaction of ingested material in the intestinal canal. Other signs and symptoms of toxemia may be explained only on the basis of faulty metabolism.

Discussing the symptomatology of chronic intestinal toxemia, G. R. Satterlee (3) states that after an intestinal toxemia is once established the effect on all the body cells may be of long duration and that it is not merely a local condition, but a general one.

Among the symptoms present in intestinal toxemia, the following are prominent:

1. Constipation—Nearly all patients suffering from chronic intestinal toxemia either have, or have had, constipation. A daily evacuation of the bowel by aid of a cathartic should not be considered as a cleansing of the gastro-intestinal tract, because in such cases, impactions or residual masses of feces are often found in the cecum, flexures, or sigmoid. Satterlee's (4) tabulated report of the studies of 136 cases of auto-toxemia is as follows:

(a) *Constipation* as a primary or secondary complaint appears in 114 cases or 84%.

(b) Diarrhea, in 39 cases or 30%, of which number 30 gave a history of both diarrhea and constipation. In 5, the history was unreliable and in 8, the bowel movements were normal.

Colica mucosa occurred in 59 or 43%. Flatus was present to a marked degree in 105, or 76%. Loss of weight occurred in 80, or 60%. Enteroptosis was absent in only thirty or 22%. Gastric constipation, as determined by the six-hour bismuth meal, occurred in fifty-four cases, or 40%. Ileac constipation was present in 3. "Residual cecum" as determined by remnants of bismuth barium in the cecum and the oral part of the ascending colon forty-eight hours after ingestion, was present in 58 cases. Colonic delay of between 48 and 70 hours was found in 13 cases. A residue in the sigmoid of more than three days' duration was noted in 47 patients. Of the entire series, 33, or 25%, had had the appendix previously removed without lasting benefit to the chronic condition.

There are numerous cases of chronic intestinal toxemia that present no constipation and in most instances where constipation exists in this condition, it is a symptom of it rather than its cause.

2. Nervous Symptoms—Mental symptoms varying from simple inefficiency to psychosis, melancholia and epilepsy, delirium and stupors occurred in 54 or 40% of Satterlee's 136 cases, and nerve symptoms—neuralgias, etc., occurred in 88 or 65% of the cases in the same series. Neuralgia, myalgia, neuritis, such as sciatica, or lumbago, hemicrania, headache, particularly the kind that occurs in the morning before getting out of bed, amaurosis, neurasthenia, migraine and sensations ascribed to the sympathetic nervous system, exhibiting a train of ill defined and troublesome symptoms, are common complexes in this condition, as are also many other manifestations of an injured nervous system.

As an example of this may be sighted the fat, flabby "neurotic" woman who begins enumerating her symptoms by paraphrasing "there is so much the matter with me that I do not know where to begin." Then she starts with a discussion of headache, pain in the shoulders, arms, fingers, back of neck, chest, difficulty in breathing, epigastric distress, epigastric fulness after eating, abdominal pain, pain in the legs and feet, and difficulty in walking. The appetite is usually good, and when such a patient complains of anorexia, a careful history will elicit that she eats twice or three times as much as is necessary for her maintenance, though she may start by saying that she has had only a piece of bread and butter the entire previous day, or she may cite one particular meal when she ate little. On examination such a patient will be found to be overfed, to have flabby skin, foul smelling perspiration, coated tongue, tender areas over the abdomen or many other tender points elsewhere. Of course, it should be borne in mind that intestinal toxemia may often be secondary to some nervous conditions or other constitutional ailments.

3. Indigestion—Symptoms such as headache, bad taste in the mouth, epigastric discomfort or pain, sometimes nausea, with or without vomiting, dizziness, mental depression, weakness and lack of endurance, constipation, diarrhea or regular movements may be present. Tenderness over the gall-bladder region, the splenic flexure, the appendix and the sigmoid is often present in the absence of any recognizable disease in the underlying viscera. At times, however, abdominal tenderness may be caused by congestion of the omentum or myalgia due to nerve injury which may be the result of malnutrition.

The *physical signs* of intestinal toxemia depend upon the kind of toxins absorbed, the susceptibility of the patient to certain toxins, and the particular organ involved. The physical signs may be slight or prominent, referable to a single organ or to the entire body. They may manifest themselves as premature baldness, premature graying of the hair, seborrhea, dry or excessively oily skin, premature wrinkling of the skin of the face, various skin eruptions, i.e., acne, eczema and urticaria; conjunctivitis, bagginess of the lower eyelids, discolorations beneath the lower lids (so called rings under the eyes), nasal obstruction due to vascomotor changes affecting the nasal mucous membrane; premature caries of the teeth, offensive odor on the breath, coated tongue, various digestive disturbances, i.e., achylia gastrica, visceroptosis and other signs simulating such organic diseases as gastric ulcer, carcinoma, gall-bladder diseases and appendicitis. Blood disease such as anemia, local hyperemia and erythremia may also be found in this condition.

The signs and symptoms here enumerated are found in many conditions other than intestinal toxemia and are therefore not pathognomonic of it. There are, however, a number of physical signs which Dr. Carl X. Mier of Karlsbaad considers pathognomonic of intestinal toxemia and when the above enumerated signs and symptoms occur in association with those pointed out by Dr. Mier,

they may be attributed to this condition and should be treated accordingly.

The pathognomonic physical signs to which Dr. Mier called attention are enlargement of the abdomen as a whole, spasticity of the bowel and change of patient's posture.

(1) *Enlargement of the Abdomen*—The abdomen is practically of the same size in all adults irrespective of the stature; it may be approximately measured by the hand of an average-sized individual whose fingers are separated and extended. To measure the abdomen by this method, the patient is placed in the recumbent posture; the examiner stands at the right of the patient and his right wrist is inclined to the right as far as possible with the little finger extended and placed on a level with the left anterior superior spine of the ilium; the base of the carpal bone of the thumb on a horizontal line with the little finger and near the right anterior superior spine of the ilium, the thumb and fingers extended and separated to capacity. In this position, the thumb should approximate the inferior right costal angle and the index finger should approximate the left costal angle. Failure to do so indicates abdominal enlargement. Roughly speaking, the degree of abdominal enlargement may be judged by noting the distances between the thumb and the right costal margin and between the index finger and the left costal margin.

Abdominal enlargement is usually due to the flaring upwards and outwards of the hypochondriac regions and the downward and backward rotation of the iliac crests. This is produced by a slight lordosis of the lower dorsal and lumbar spines as a result of muscle rigidity secondary to visceral irritation.

(2) *Spasticity of the Bowel—Palpation* of the abdomen usually reveals increased rigidity of the hypochondriac regions, increased muscle tenseness over various regions of the abdomen and spasticity of the ascending, transverse or descending colon. Portions of the colon may be outlined or "rolled" under the fingers. There are also areas of slight tenderness to superficial or deep palpation overlying an inflamed, irritated or impacted viscus. *Percussion* as a rule elicits a greater amount of abdominal tympany of a higher pitch. *Auscultation* reveals either an increased amount of splashing-gurgling sounds or a diminished peristalsis. At times increased peristaltic sounds are heard over one portion of the bowel while at the same time faint sounds or no peristaltic sounds at all are heard over another part of the bowel (in the absence of acute obstruction).

(3) *Change of Posture* occurs as was intimated before, because of muscle rigidity and tension of the spinal, lower costal and abdominal muscles. The normal curves of the spinal column exaggerated, causing the patient to assume a posture somewhat resembling a question mark—that is, the shoulders slope forward and the upper spinal curve is heightened, the lower spinal curve becomes more lordotic, producing greater protrusion of the abdomen, which is further accentuated by the backward and downward slope of the iliac bones.

DIAGNOSIS—The diagnosis of chronic intestinal toxemia is not difficult. A patient who has been suffering for a number of months or years from vague symptoms usually ascribed to nervous indigestion, sympathetic nerve imbalance, psychasthenia, etc., without definite physical basis for his ailment, or from unexplainable headache, myalgia, neuritis, incompetency, undue fatigue, or from obscure, refractory skin lesions, or anaphylactic manifestations not responding to sensitization tests and apparently not due to a readily discoverable cause, should be considered as manifesting chronic intestinal toxemia.

TREATMENT: The treatment of intestinal toxemia depends upon:

(a) The underlying cause.
(b) The amount of damage done to the various organs involved.
(c) The physical condition of the bowel.
(d) The presence or absence of complications (in other organs).
(e) The ability of the patient to carry out the treatment.

Two great principles of treatment are laid down by Dr. Carl X. Mier (5) that are applicable to all cases of intestinal toxemia, irrepective of their symptomatology—

(1) Resting the gastro-intestinal tract.
(2) Cleansing the bowel.

It should be borne in mind that in addition to these principles patients should be individualized as to treatment of certain idiosyncrasies. However, Dr. Mier applies the two principles mentioned to all cases irrespective of cause or of other conditions present, reporting cures in nearly all cases that follow out his treatment. This consists of absolute abstinence from food for 10 days or two weeks. The patient is either put to bed or is put on partial rest, being allowed several hours' exercise each day. He cites himself as an example who at one time remained in bed during his two weeks' fast period, and, on two other similar occasions, carried on his usual laborious work notwithstanding his abstaining from food. During the period of fasting, the patient is encouraged to drink large quantities of water. Strange as it may seem, the loss of weight during the fast period is very little. At the end of the fast period, the patient is permitted to have a glass of milk three times daily for about one week and after that a piece of zwieback is added to the milk which is taken three times daily. Following that period, certain articles of food are gradually added to the diet, such as lamb chop, rice, chicken, fish, bread and a potato. At the end of the six-weeks period, the patient takes three prescribed meals a day and usually "feels well." During the entire "cure," the patient takes six to eight glasses of a natural mineral water, of which sodium sulphate is one of the principal ingredients, and receives manual abdominal minipulations. These are effective in producing daily bowel evacuations and in eliminating the intestinal toxins. The abdominal manipulations as practiced by Dr. Mier are effective in stimulating the function of the bowels by restoring tone to the abdominal as well as the bowel musculature. If the abdomen is enlarged it may easily be reduced by this method of manipulation. There is little doubt as to the efficacy and good results obtained by Dr. Mier in Karlsbaad, but in this country, particularly if the treatment is to be given when the patient lives within his own home or in a hospital in his home town, there may arise complications of business and social life to interfere with so severe and protracted a course of treatment. Therefore, in order to be effective, the original plan of treatment must be greatly modified.

In a somewhat modified form, I have thus far attempted to treat 54 patients whose ailments, though varied, were attributable to chronic intestinal toxemia.

The group of 54 patients treated consisted of the following cases:

Diseases	*No. of Cases*	*Male*	*Female*
Cholecystitis	4	0	4
Eczema	2	1	1
Flatulency	3	1	2

Migraine	3	1	2
Morning headache	1	0	1
Morning cough	1	1	0
Neuro-muscular asthenia	14	5	9
Nervous indigestion (so-called)	16	2	14
Pruritis	1	1	0
Urticaria	4	2	2
Visceroptosis	5	1	4
	54	15	39

These cases were selected for special treatment because they presented symptoms of intestinal intoxication plus enlargement of the abdomen and a spastic, tender colon.

The routine treatment instituted in these patients was as follows: *First period* (3 days)—

(1) An initial high rectal soap-suds enema,
(2) Entire rest in bed for three days, except for one-half hour exercise daily;
(3) Total abstinence from food during these three days except for a glass of water hourly during waking hours;
(4) A prescription containing 15 grs. each of sodium phosphate, sodium sulphate, sodium and potassium tartrate and magnesium sulphate in a glass of hot water on arising, followed by the one-half hour brisk walk outdoors;
(5) A daily 10-minute period of abdominal manipulation;
(6) A daily tepid bath followed by a brisk rub with a rough towel.

This regimen was followed by all the patients treated. *The second period* consists of seven days. This period is divided into three parts so that for three days, only one glass of milk is given three times daily; on the two following days, one glass of milk and one slice of toast is given three times daily. On the last two days of this period, the following is allowed:

One glass of milk, a piece of toast and stewed fruit for breakfast.
A cereal and a glass of milk for lunch.
A glass of milk and two pieces of toast for supper.

The cases of urticaria, eczema, pruritis and migraine received skimmed milk instead of whole milk and were allowed a double quantity of it. The salts and abdominal manipulations were continued as in the first period. During the second period, the patient still abstains from work though he is encouraged to walk about, observing only a rest period of two hours after the noon meal. During this period the patient often shows signs of intoxication such as headache, bad taste in the mouth, four odor of breath and perspiration, various nervous symptoms and irritability of temper. These symptoms are due to the absorption of undiluted toxins from the intestinal canal.

The treatment in this period is the hardest to carry out as most patients rebel openly and others take forbidden food surreptitiously. The greatest trouble is encountered with the psychasthenics who find more ailments to complain about, and the so-called nervous dyspeptics who fear atrophy of the stomach.

The third period consists of 14 days. The patient is permitted to return to work if that be an absolute necessity. The food is increased to one egg, toast, stewed fruit and milk for breakfast; a lamp chop, the white meat of chicken or broiled fish for dinner; and a cereal such as rice or cream of wheat; some lettuce, a potato and milk for supper. Water is to be taken freely between meals. The salts are continued on arising, and the daily abdominal manipulation is increased to 15 minutes.

After the third period, the patients are individualized. The food is to be increased or diminished; various articles of food may be added to the dietary of patients who are accustomed to and crave such food.

Of the 54 patients thus treated only 20 continued faithfully for 3 months, at the end of which time they became symptom-free and were still on a carefully regulated regimen, though feeling fit.

The patients successfully treated comprised the following: Eczema, 2 cases; flatulency, 2 cases; migraine, 2 cases; morning headache, 1 case; neuro-muscular asthenia, 3 cases; nervous indigestion, 4 cases; visceroptosis, 2 cases; urticaria, 3 cases; cholecystitis, 1 case. The remaining patients had their treatment discontinued either because they failed to carry out instructions and therefore were dismissed, or they of their own accord became disgusted with the treatment because they saw no quick results. Five patients discontinued treatment at the end of the second period because they claimed that they felt so well after the third week that they saw no reason for being treated.

The abdominal manipulations are best done by the medical attendant; or a trained nurse or masseur may be taught how to carry out these manipulations.

During the first and second periods, the patient is seen daily, and during the third period, if proper progress is made, only once a week to the end of three months. Thereafter once in two weeks or once a month until the patient is finally discharged.

SUMMARY—Chronic intestinal toxemia is a common disease with an extremely varied symptomatology. The treatment consists of cleansing the intestinal tract of accumulated materials and preventing the accumulation of new offensive materials, and strengthening the abdominal muscles as well as the musculature of the gastro-intestinal tract. The treatment is to be continued until the normal function is reestablished.

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Diathermy in Gynecology

Surgical diathermy has a wide field of usefulness in gynecologic work.

Chronically infiltrated periurethral glands and ducts are quickly and definitely obliterated by electrocoagulation with a fine wire. Bartholin glands may be readily excised by the electric knife and the sterilization of the resulting surfaces enables the operator to close tightly the excision wound with an excellent chance for primary reunion.

The destruction of urethral caruncles by electrocoagulation furnishes excellent results. This method is rapid and bloodless, and does immediately away with all the well-known bothersome symptoms. Exfoliation of the scab and epithelialization is obtained in from eight to ten days.

Electrocoagulation is of signal value in dealing with recurrences after removal of cancerous uteri by hysterectomy and in primary inoperable cancers of the portio and cervix.

Electrocoagulation immediately does away with the lancinating pains, with the foul discharge and hemorrhage, while the combination with radiotherapy furnishes definite results in a surprisingly large number of instances. The insertion if the radium container follows immediately the electrocoagulation, thus taking advantage of the influence of the rays of the zone of reaction around the coagulation, the so-called perithermic zone, which in short order inundated by the defensive cells of the reticulo-endothelial system. This procedure harmonizes with the modern views on cancer therapy which consider the general systemic reaction to be of prime importance.

Whether or not this combined method should be substituted for hysterectomy in operable cases is a matter of future consideration.

Surgical diathermy of cancers of the female bladder has established its superiority over other methods in the same way as in dealing with malignancy of the urinary bladder in the male.—G. KOLISCHER, M. D., in *Amer. J. Obs. and Gyn.*, April, 1930.

The Pathogen-Selective Vaccine. Its Preparation and Administration

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The pathogen-selective vaccine is made chiefly from organisms that are pathogenic to their host. This specific pathogenicity is determined by utilizing as a culture medium the patient's fresh, whole, coagulable blood, which is bactericidal or bacteriostatic to those organisms that are non-pathogenic to him, while permitting the free growth of those organisms that are pathogenic to him. In addition the vaccine contains the unheated toxins elaborated by the organisms. Its chief use is in the treatment of systemic diseases caused by focal infection.

The material for culture is obtained by using a sterile swab made by wrapping a small amount of cotton around the end of a wooden applicator and then sterilizing it. (For the rhinopharynx, instead of the wooden applicator, a flexible metal applicator, bent into the proper curve, is used.)

When the *nares* are cultured, a narrow swab is introduced into them and made to wipe off all the mucous membrane that is accessible. If a *particular sinus* is to be cultured, a rhinologist should rub the swab at the opening of the sinus. To culture the *tonsils*, a swab is introduced into the tonsillar crypts and between the tonsils and the faucial pillars. If the *tonsillar spaces* are to be cultured, a swab is rubbed in the tonsillar fossae. In culturing the *rhinopharynx* a curved, flexible, metal applicator, with cotton wrapped securely around the end, is introduced behind the soft plate and rubbed on the vault of the pharynx. With sterile cotton the curve is then straightened. *Urine* is cultured by introducing a sterile swab into it.

When culturing the *feces* an emulsion of the feces in broth is first made and a swab introduced. *Pus* from a boil, abscess or sinus, or from the eye, ear, urethra, vagina, cervix, etc., or obtained through a bronchoscope, is taken up on a swab. A swab is introduced into *pleural exudates*, material obtained by *gall-bladder drainage, etc.* After a *tooth* has been extracted, while it is still held in the forceps, a swab is rubbed on the apex or on any attached abscess or granuloma. The swab is introduced directly into the *tooth socket*, when the latter is cultured. In culturing *sputum* a swab is placed in different portions of the sputum which has been expectorated into a sterile container.

Each swab containing material for culture is first rubbed on the bottom and sides of an empty sterile test tube into which one or two drops of a broth medium have been introduced a short time previously, in order to prevent the organisms from drying. The same swab is then introduced into a tube of rich broth medium, especially suitable for growing streptococci (Rosenow's brain medium or beef heart and brain medium, Difco).

Each swab is inoculated into a different pair of tubes, except that swabs from both nares may be inoculated into the same tubes and swabs from both tonsils or tonsillar fossae may also be inoculated into the same tubes, which latter tubes may also be used for the swab from the rhinopharynx.

Immediately after the tubes are inoculated, about 10 to 15 c.c. of blood are taken from the patient's vein, the amount depending upon the number of cultures taken, and 3 to 5 c.c. placed in each of the dry test-tubes in which material has been smeared.

All the tubes are now placed in an incubator at 37.5° C. for from 18 to 24 hours, at the end of which time they are examined for growth. Smears are made from all tubes and the types of organisms in each noted. All cultures and blood tubes are then plated on blood agar for the purpose of further identification, and, in addition, broth cultures are inoculated from the blood tubes as a check on the blood agar plate in cases where there is no growth, and to be used in the preparation of a vaccine if growth occurs.

The following day (2nd day) the blood plates are examined and the types of organisms present noted. The original broth culture and the broth culture inoculated from the blood tube are used for vaccine material.

The vaccine is then prepared in the following manner: The original broth culture is mixed with the broth culture from the blood tube in the proportion of 1 part of the former to 9 parts of the latter. 90% of this mixture then represents the organisms that grew in the patient's blood and 10% or less those that did not grow in the patient's blood. (The original culture usually includes organisms which did not grow in the patient's blood and frequently also those that did.) In cases where cultures are made from various parts and but one or two of the blood tubes show growth, the procedure is as follows: All of the original broth tubes are mixed and one part is mixed with nine parts of the broth culture from the blood tubes. The suspension is diluted so as to contain 500 million bacteria per c.c. Tricresol is then added as a preservative and for the purpose of sterilizing in the strength of about 0.35%, (0.7 c.c. of a 5% tricresol plus 9.3 c.c. of suspension). The vaccine is then placed in a 20 c.c. vial with rubber stopper (final container) and incubated for 24 hours, at the end of which time 1 c.c. is removed and tested for sterility.

It is to be noted that, in addition to the attempted selection of the proper organisms, the final product contains the bouillon in which the organisms have grown and further that it is not heated. It therefore contains unheated toxins and products of bacterial growth. The method of culture and preparation of vaccine just described is a modification by Fred C. Boerner and the writer of the methods previously described by the latter (1, 2, 3).

The rationale of the pathogen-selective culture and vaccine is based on experimental work by the writer and others (4 to 17) showing that the fresh, whole, coagulable blood of animals has a bactericidal or bacteriostatic action upon organisms to which they are naturally immune or against which they have been artificially immunized.

Several practical advantages of the method according to Lowe (18) are: (1) It allows of many foci being examined at one sitting; (2) It differentiates between foci which are causing systemic infection of the patient and those which are not doing so, at the time of examination; (3) It selects the organisms in such foci which are responsible for the systemic infection in certain cases, sometimes indicating one particular strain as the only important pathogenic agent in the patient infected.

An analysis of 400 cultures examined by Lowe (19)

showed that: (1) similarity of results in the ordinary direct culture and in the blood culture occurred in only 6 per cent; (2) a selection of more than one organism out of the many present in the direct cultures obtained in 30 per cent, (3) the selection by the blood cultures of a single organism out of the several shown to be present in the direct cultures was found in 35 per cent, (4) in 18 per cent organisms were isolated in the blood cultures which did not appear in the direct cultures, (5) in 22 per cent all the organisms present in the direct cultures were inhibited by the blood cultures.

This bears out the writer's contention that the predominating organism in an ordinary culture from a possible focus in a subacute or chronic case frequently is not the etiologic organism or not even pathogenic to the patient. Consequently in such cases a vaccine prepared from the predominating organisms can have no antigenic or curative value.

The pathogen-selective vaccine as a rule is very potent. The dosage (with the possible exception of the initial dose) can never be determined in advance but must be based upon the general, focal and local reactions to the preceding dose.

In determining the initial dose it is best to first inject intracutaneously in the forearm 50,000,000 organisms (0.1 c.c. of the vaccine). If the reaction is not severe this same dose may then be given subcutaneously. Should the reaction to the intracutaneous test be severe, from a half to a tenth of this amount should be injected subcutaneously as the initial dose. In cases of asthma it is better to inject only 5,000,000 or 10,000,000 organisms (0.01 c.c. or 0.02 c.c. of the vaccine) intracutaneously.

If this preliminary intracutaneous test is omitted, the average initial dose should be 50,000,000 organisms (0.1 c.c. of the vaccine), except in cases of asthma, when it should not exceed 5,000,000 organisms (0.01 c.c. of the vaccine).

When the general, focal and local reactions produced by the preceding dose are all mild, an increase of 50,000,000 organisms (0.1 c.c. vaccine) for the second dose or for subsequent doses, an increase equal to the increase of the preceding dose usually is safe. If no reaction of any kind occurs, an increase of 100,000,000 or even 150,000,000 organisms (0.2 to 0.3 c.c. of vaccine), after the second dose, is justifiable. After a moderate general or focal or local reaction an increase of 50,000,000 organisms (0.1 c.c. vaccine) is indicated for the next three or four doses. If any reaction is severe, the dose should be repeated, diminished, depending upon the degree of severity. A very severe reaction necessitates the dose being halved or quartered or diminished even further.

Beneficial results from the use of the pathogen-selective vaccine have been reported by Walls (20), Clark (21), Lowy (22), Beckley (23), and Lowe (18), in addition to the writer (24 to 80).

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Middle-Class Medical Care

Another Experiment in Middle-Class Medical Care. In February 1930, the trustees of the Massachusetts General Hospital will open a new unit called the Baker Memorial. The Rosenwald Fund Committee has agreed to underwrite one-half of the deficit in operation of this hospital during its first three years up to a maximum of $150,000, with the understanding that the deficit will not exceed $75,000 in any one year. The Baker Memorial has been designed for the care of sick people of moderate means. It is pointed out in the Massachusetts General Hospital News that the care of the sick in this unit will include voluntary curtailment of the physician's fees so that those entering the institution will pay a maximum fee of $150 for any illness or operative care and that the maximum fee for uncomplicated obstetric service and hospital care will be $100. Only members of the staff of the Massachusetts General Hospital and of the Charitable Eye and Ear Infirmary and the obstetric staff will be permitted to practice in this institution. This hospital has been definitely planned and constructed, and is to be quite definitely operated, as a middle-class institution. The employment of special nurses will be discouraged. Ward maids, nurses' helpers, and floor clerks will be utilized so that nurses will devote all their time to actual bedside nursing. A special social service department will control the class of patients to be admitted. The institution will have 333 beds, part of which will be used at first for the interns and nurses, since special buildings for this purpose have not yet been provided. There are to be eighty-eight beds in single rooms, twenty-four beds in two-bed wards, twenty-eight beds in four-bed wards, and eighteen beds in cubicles. For obstetric patients there will be twelve beds in single rooms, six beds in two-bed wards, and eight beds in four-bed wards. Private rooms will cost $6 a day, cubicle beds $4 a day, and the two-bed and four-bed wards will vary between these figures. Nursing, food, and ordinary drugs are included in this price. Special fees will be charged for laboratory work and for roentgen-ray work. It will be interesting to see whether this experiment can operate successfully and pay its own way. The fees are not apparently much greater or much less than those charged today in most of the hospitals in the United States.—*Journal of the A. M. A.*

Hypocalcemia, With Lowered Basal Metabolism and Tendency to Bleeding (Epistaxis)*

Case Report

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In January, 1929, a young professional man (age 29 years) came to my office complaining of attacks of migraine and severe headaches, off and on, for the past fifteen (15) years. At this time he was getting these attacks only several times a year. He complained also of drowsiness and inability to keep awake in the evening, on return from his office. Occasional nosebleed, which in earlier life was quite frequent. Before 1925 he had some severe nosebleeding. Some pains in the knee-joints.

Past History—Had diphtheria, typhoid fever for six weeks in 1927, and pneumonia. Three attacks of rheumatism. Nose "blocked up" frequently. Headaches—relieved by sleep. Tonsillectomy several years ago, was followed by severe secondary bleeding. Denies venereal disease. Married, and has two children. Wife had no miscarriages.

Family History—Parents living. Mother is a mild diabetic. Father and two brothers had frequent nosebleed. Father suffers from "hypertension." Two brothers and one sister living and well. Brothers also bled profusely after tonsillectomy.

Examination—Weight, 170 lbs. Height, 5′ 10″. *Eyes*—reflexes normal. Sharply 5/4 vision in each eye, low amount far-sighted astigmatism. *Teeth* (*x*-ray), negative. *Sinuses*—(*x*-ray), distinct clouding of left antrum, haziness suggestive of chronic pathology of mucous membrane rather than free exudation. Other sinuses negative. *Sella turcica*—normal. *Throat*—remains of infected right tonsil stump. Fluoroscopic examination of chest, negative. *Heart*—evidence of rheumatic myocardial and endocardial damage of moderate degree. *Lungs*—negative. Blood pressure $\frac{\text{S. 110}}{\text{D. 78}}$ *Urine*—S. G., 1.012. Acid. No albumin. No casts. Urea, 0.9 per cent; no sugar; few pus cells; no urates.

1/23/'29—Blood Wassermann Test, negative.

1/23/'29—Blood sugar, 90 mgm. per 100 c.c. blood.

Basal Metabolic Rate—minus 25%.

Blood Count—Hemoglobin, 96%.

Blood platelets .. 290,000.
R. B. C.....4,930,000.
W. B. C..... 10,000.

Differential White Blood Count—

Polys .....59%.
Small Lymphs ..38%.
L. L. ..... 1.
Baso ..... 1.
Trans. ..... 1.

Feb. 4, 1929—"sleepy", "drowsy"—fatigued. Pain in right lumbar region.

Blood Pressure $\frac{\text{S. 115}}{\text{D. 82}}$

Feb. 22, 1929—*Blood Calcium*—7.9 mgm. per 100 c.c. blood.

Bleeding time—2½ minutes.
Clotting time—11 minutes.

Treatment—Tonsillectomy—removal of remaining right tonsil.

Submucous septal resection.
Puncture of left antrum.
Administration of calcium gluconate and calcium-chloride-urea, intravenously, in 10 c.c. (10.%) doses.
Parathormone hypodermically.
Thyroid extract by mouth in increasing doses.
General ulraviolet ray therapy.

As the result of the above measures, the patient rapidly improved. He withstood the operations on the nose, throat and maxillary sinus without trouble and without any undue bleeding.

March 27, 1929—Normal *basal metabolic rate*—(minus 4%).

Blood Chemistry—Blood calcium—11 mgm. per 100 c.c. blood.

Urea-nitrogen ..12.5 mgm.
Creatinine ..... 1.4 mgm.
Uric acid ..... 3.8 mgm.

April 4, 1929—*Blood Chemistry*—

Blood uric acid, 4.3 mgm. per 100 c.c. blood.
Urea-nitrogen ..12.5 mgm.
Creatinine ..... 1.2 mgm.
Calcium .....11.2 mgm.

Pulse regular. Heart action stronger. Patient "feels fine", alert, able to do more work, and is now more active, does not feel "sleepy and drowsy". Pains gone.

Discussion: The question of diagnosis in this case was rather complicated, though very interesting. In view of the history of frequent recurring nosebleed, in this patient, and in several members of his family—two brothers and his father—the diagnosis of "familial epistaxis" without typical hereditary hemorrhagic telangiectasia (familial) was to be considered. It is also of interest that one brother's wife and her father and brothers are all nosebleeders. There are several other members of this family who bleed from the nose. I am not informed as to the presence of any telangiectatic lesions in these cases. I will not discuss this angle of these cases any further at this time, except that they may resemble the cases reported by Giffin (1927), Lane (1916), Taunton (1830), Sutton (1864), Barford (1926), Verneuil (1894), Babbington (1865), Blumenfeld 1926), Goldstein (1922), Miller (1923), Wilson (1869), and others. The patient had a definite lowered basal metalbolism with low blood calcium and a low grade of "rheumatic infection" which may have accounted for the entire picture of the case, caused by the various foci of infection in his nose, sinuses, and tonsils. It is important to remember that patients who suffer from *recurrent epistaxis* are predisposed, apparently, to attacks of *rheumatic fever* and hemoptysis. This was shown by Sutton (1864) and others. Hoffmann, also, has stated that those who suffer with frequent and copious epistaxis in early years are often subject in youth and adult life to hemoptysis and phthisis, and in middle age to gravel and gout. Sutton found that during phthisis, epistaxis often occurred before the at-

* Read before the Camden County Medical (N. J.) Society, February 11th, 1930.

tacks of hemoptysis. We know that epistaxis frequently occurs as an annoying sympton in *rheumatic fever, endocarditis,* influenza and typhoid fever.

Conclusion: For further discussion on the question of "multiple hereditary telangiectasia" with recurrent (familial) epistaxis, I can refer you to my paper published on the subject in the *Archives of Internal Medicine,* Chicago, Jan., 1921, and to an excellent article by Becker in the *Archives of Dermatology and Syphilology,* 1926 (page 387). The case here reported is, in my opinion, *a definite clinical entity associated with lowered basal metabolism, hypocalcemia with recurrent epistaxis, tendency to bleeding, with a normal blood picture and blood platelets, with foci of infection and hereditary deficiency of the capillary system as the probable cause.* I have found no other cases exactly like this one in the literature.

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* Crowhurst Archer's patient suffered from "multiple angiomata" with hemiplegia with frequent attacks of bilateral frontal headache. He was 21 years old at time of first "stroke" (telangiectatic hemorrhage), from which he completely recovered. The patient was mentally dull in appearance, slow in movement and was constantly chilly, which according to Archer, seemed to point to a *diminished thyroxin secretion* (hypothyroidism). However, no basal metabolism and no blood chemistry reports are included in Archer's paper. (The patient's brother also had "multiple angiomata".) Therefore, it cannot be definitely stated whether Archer's patient really had "hypothyroidism with hypocalcemia," as was shown in my patient.

Sciatic Neuritis and Sciatic Neuralgia

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It is commonplace in the active practice of medicine that every case of illness merits an individualistic consideration or slant. Textbooks of standard worth *may* coincide with what we have to deal with, whilst on the other hand, one may be confronted with such odd variants that their use may actually mislead.

Nowhere is this better exemplified than in a consideration of sciatic pain. Thomson and Gordon, in their recent excellent volume on "Chronic Rheumatic Diseases," stress the academic nosological aspect, and it surely is such in the case of *sciatic neuralgia* on the one hand and its closely allied congener *sciatic neuritis* on the other. The above mentioned writers are well within the range of accurate statement when they assert "the distinction between the two is more academic than practical, as all grades occur, from the slighter cases, of which the only symptom is intermittent, sharp, stabbing, neuralgic pain, to the more severe, with a wasting of muscles, loss of sensation and trophic disturbances."

Accepting, to start with, severe pain of sciatic distribution as the sole criterion of study, it may prove of interest to consider forty-two cases of such a nature in private work and see where an evaluation of individualistic study may lead.

Quite contrary to the textbook, 31 of the 42 were found among women, only 11 falling among men. In the series a left-sided preponderance was noted in 6 out of the 11 males, and in 9 out of the 31 females. A higher male incidence was also seen in the cramps of the lower limbs, shown in 5 of the 11 cases, while but 10 of the 31 were in evidence among the female grouping.

In the latter a more marked aggravation from wet weather was in evidence, 7 out of the 31 so complaining. This was in sharp contrast to the figures of but 1 in 11 in men. Marked amelioration from heat ran a like parallel, 6 of the 31 in women, but 1 in the 11 on the other side. Not one of the men was actually obese, but 5 of the women were. Again, only 1 of the men was markedly costive, as compared with the 6 of the opposite sex. Positive leanness was in evidence in but 1 male and 1 female.

Barometric influence appeared less of a factor with the women (3 cases) as compared to a like number in the other listing.

What is currently dubbed emotional instability, or "nerves," was seen as a dominant female factor, as exemplified in the feeling of constant anxiety (4 cases), and in palpitation of the heart (4 cases). Emotional instability as a factor was not seen in the male cases. A nightly aggravation was apparent in five females and in evidence in but one male.

Two of the female cases were actually induced by trauma. One of the males was markedly tuberculous, in fact he died of phthisis later on. Three of the women were laid low during the climacteric.

In a consideration of this malady, a preventive-minded attitude is forced on one when the various consensual causative factors obtrude themselves into one's consciousness. Mismatings often result in offspring of feeble resistance. This is quite hard to get at, at the source. No one seems able radically to change human nature in this call-of-the-mate business. Attention to the costive state, more especially in women, is very pertinent. Coupled with the removal of septic foci, this seems very important. Methods to deal effectively with nerve tension at the critical periods of pre-adolescence, and with the climacterics of both sexes, the latter being ten years or so further along in the male sex, are important. To my mind nerve strain is often seen in those pursuing vocations not suited to their personal tastes. Wedded to the wrong profession is quite as serious a problem as wedded to the wrong wife.

With long continued strain, one sees often associated an excess in alcoholics. Brandy and whiskey devotees are frequently sorely hit. There is one type which is very hard to handle—men beyond fifty, convivial and hard living, who present themselves with prostatic enlargement which has insidiously progressed to a bad

prognostic surgical phase. The malodorous toxic urine often produces in such a root sciatica, as well as a poker spine, the latter particularly severe from the mid-dorsal region downwards. Osteophytic changes, neuritic inflammation, and a perineuritic matting, stiffness and rigidity, are very much in evidence. From over-eating and lack of exercise such cases are often obese with a flabby cardiac muscle and very poor generalized muscular tonus; these types are very hard for anyone to handle properly. Self indulgence militates decidedly against their taking orders even for their own good. Their dieting soon proves irksome and they lapse quite readily.

It seems abroad, especially in Germany, a judicious following of physicians' orders is quite common and their results, as a consequence, are surprisingly good in just this kind of a case. Fortunately, through the influence of such men as McCollum, McCarrison, and others, the extreme value of proper eating is better appreciated in the United States each year and there seems a wave of effort against the padded and overweight type. A proper realization of this very question of diet, the avoidance of mental and physical strain, and the removal of foci of infection, will in time bring the desired results and the consequent lessening in the incidence of both sciatic neuritis and sciatic neuralgia. 1805 Chestnut Street.

Convalescent Care as a Clinical Fine Art

Nervous Complaints and Nervous Complainers

Fourth Article

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Unnatural States of Mind and Feelings; of Actions and Reactions

Chiefly Those Which Complicate or Retard Convalescence; Perilous Situations Against Which One Should Sedulously Be On Guard. These Include Whims, Moodiness, and Varied Perturbations of the Self or Psyche; Abnormal Ways of Regarding One's Own Ailments and Also One's Relationships to Others. Temperamental Misfitness or Unfitness; These Form Separations of a Social Kind From the Streams of Normal Livingness.

It is well worth while for everyone to learn enough of the *normal* workings of the mind as would give a fair idea of the contrasting *abnormal*. Ignorance of these—as in matters of the law—affords no excuse. Nor does disregard of them help us to escape the logical, or it may be, inevitable consequences.

Everyone becomes familiar wit' certain queer or unaccountable feeling states obse· ·le in others and also in oneself. They grow wo| if watched for and dreaded. The mild ones are well expressed by the phrase: "I'm off my game today." This may persist for an hour, or scores of hours; may be vague or pronounced. Our attention then wanders—strive as we may to hold our wits in hand. Our proficiencies are "on the blink"; our own power to foresee, to plan or to do as we expect of ourselves, has oozed away.

How does this bewilderment come about? The condition is one wherein our energy reserves have temporarily scattered; slipped from under control; our initiative is befogged or lowered.

Such abnormalities of thinking, feeling, believing and doing, create confusions for oneself and impatience or scorn or harmful sympathy in those with whom that one comes in contact. They are emotional more than mental or even physical. The origins commonly start in body sicknesses or on top of constitutional peculiarities or defects. They are expressions of irregularities in energy saving and distribution.

Among this bewildering company are encountered such manifestations as these: a sense of unreality, of uncertainty, gloomy phantasies, day dreams, nightmares, unaccountable compulsions or impulsions, anxieties, or the pursuit of phantastic enterprises, urgent ambitions, vanities, distortions of one's sense of duty, "clouds upon the consciousness." Also besetting fears or dreads, and many more allurements or revulsions; a general situation of being off the customary track or astray from safe or commendable trails or patterns.

No one art deserves higher appreciation than that of getting on serenely with the folks about. Bad behavior habits should be resolutely brought into the light and reformed. The mere effort to abrogate them goes far toward cure by readapting the self-guiding or mental processes. Here firm discipline is needed; always kindly but dominating; also search back to such origins as mental and emotional shocks, conflicts, disappointments, soul bruisings. A full search is needed slowly and tactfully down to the sore spots to explain and reconcile and heal them. Then reshape or remould the psyche.

What are the sources of erroneous self interpretation; of states of elation or depression; of vigor or weakness? How shall we account for them? How can we compensate or equalize perturbations as they influence effective restoration?

Answers to the above queries would be of paramount value in selecting and applying convalescent measures since they form the basis of judgment in handling the situation. They lie in the realm of instinctive urges and behavior. They, and their effects, are often extremely difficult to account for, indeed it is often not possible to do so. We may, however, approximate; the effort at least helps to enlighten us. The main thing is to do no harm and leave no scars on the spirit.

Disorders of sense perception; distresses due to emotion, cause just as much real suffering as those due to body changes. They are often quite similar in character and form and location—wounding, pinching or compressing. Unless they are rightly interpreted we—physicians and others—may commit errors in management and leave lasting disablements. Here the family needs education and good or bad results are largely in its hands.

Instinctive urges—as William James says—lie well outside of faulty memories, or even beyond inexact

meanings of words and facts upon which judgments should rest. They may be described as residing in that vividly interesting domain where the soul spirit hovers or flutters, or timidly stands in readiness to cooperate with the earth-bound. Could we always answer such queries correctly we should come near to that measure of perfection which many wise ones confidently feel that man is entitled to possess. We could also thus keep our powers in readiness to fulfill our expectations of our higher selves. We should be like angels or "as gods walking" and otherwise behave to admiration. We should thus achieve a merging with Divinity.

These shifting attitudes or vagaries of will are likely to be found in humans of peculiar sensitiveness; of exaggerated responsiveness. Some call them "vibrant individuals." Such folk are liable to go much too far. When once started the boiling though errant forces may counteract and nullify good behavior.

What is a mood? An emotional commotion normally subsides into a mood before the excitement wholly passes away. A mood is the persistence of emotion prolonged after any thought or recollection of the object or event.

Persistent moods tend to become morbid. Some moods are due largely to organic states, the outgrowth of urges among unfelt sensations arising in the organs, the viscera. In such sensations and urges arise the processes of thought or impulse, or the shaped up feelings. The greater the agitation the wilder the behavior, the more unreasonable the speech, or conduct.

You are then well aware of strange feelings in your "insides" under strong emotion, differing in the form of the excitement; as of love, affection, gratitude on the one hand, to fear, anger, repulsion on the other.

The most potent influences exerted upon the individual and upon society are through the overwrought emotions rather than the intelligence or reason.

What is a complex? This topic is now much in the foreground of attention. Hence a fair notion of what this is will help mightily in getting a right line on a host of queernesses in yourself and others. You cannot afford to let these "go at that," or pass them by with a shrug. It will also help in understanding much of the psychological jargon which now tinctures converse or chatter.

You may ask: "What are all these guesses to me?" The answer is—in part—that one of the greatest, most profitable, occupations is giving full rein to one's urges toward light; toward solving the problems of life and livingness. Also to discuss these (with reservations) with those of your family or neighbors or clan; also with those of the same social education, standing, or experiences of any sort.

A large number of people are now busily engaged in "searching their souls" or their feeling tones, and plumbing the depth of their psyches, their mental processes and especially the vagaries of their neighbors. Many amazing conclusions are being reached. Some of these endeavors are of value. The majority lead to dangerous and *complex* errors. Since error is proverbially neutralized by winning the truth, let us by all means seek for truth, for thereby are we made whole, or set free.

The processes of the mind, emotions or inner self, should proceed steadily and rhythmically along their appointed lines. They will so do unless subjected to confusing influences; especially such as are the product of the prodigal pressures, the over stress of mental shocks, small and large, induced by a crowding and complexifying civilization. The minds of a large proportion are by no means stable enough to reach a safe haven, or norm. Hence they suffer disordering or destructive effects.

A complex is—in essence—a mental situation or peculiarity so colored by emotional commotions that where the one state fades out and the other brightens, cannot be exactly determined but can be helpfully modified. It may be regarded as a phase of thinking so constant as to be indistinguishable from the norm. When, however, these features of thinking—or ideation—differ so widely from others as to excite suspicion or adverse comment, then the complex is an abnormal one and needs to have allowance made for it, and its effects; to be guarded against or compensated as best one may.

A complex is a mental attitude wherein the natural or usual processes have been crowded out of their channels, pushed to one side or other of a state of balance through compelling influences. Hence arises a lack of proportion, of symmetry, in the mental or spiritual forces. They are out of tune or harmony. The creature fails to dominate the situation and inadequacies ensue.

The term complex serves to define a group of ideas which belong together and "have a common emotive tone"; or a complex or congeries of ideations of so marked an emotional accentuation as to split off from consciousness and become repressed, or put back into the unconscious, or into "a state of dissociation." A group of ideas is thus clustered about a central event, which event has a large content of emotional coloring.

A "complex" thus embraces three main concepts: first, a group of ideas about a central event of a highly emotional content or make-up; second, the self-disturbing nature of this event; and third, the splitting off of this system of ideas from consciousness and its repression into the cellar or dump heap of the unconscious.

From actual experience we know that events of a strongly emotional value, and the ideas outgrowing from them and grouped around them, often induce morbid states of mind, even though the entire congeries of ideas built about them are innocent enough and can be reached out for and brought back into plain view.

A lot of good can be done for any person suffering from mental distress by properly getting at, and handling, adapting, the conscious complex. Some ideas exert a higher and some a lower *valency* (power of effect) upon one, i.e., to induce painful or pleasurable emotions.

Obsessions, phobias and self compelled acts observed are like all moods, queernesses (psychoneurotic symptoms) produced by the activity of conflicting complexes. The queer phenomena exhibited are compromises formed between opposing affectivities (feelings). They are accentuated groups of ideas and impulses which—neither side being powerful enough to completely check or restrain (inhibit) the action of the other—give origin to sets of activities in a new direction corresponding to resultants of their combined forces.

The sources of these impressions may have lost their early stamp of authority and, though the impressions themselves have for the most part sunk below the level of conscious recollection, their influence to some degree remains.

A person's religion or clan or national complex tends to influence his judgment, fetter his logic, and operates toward making his final opinion on all matters connected with them foregone conclusions.

He might believe that his affirmative conclusion was determined solely by the merits of the case, and that he had not allowed his judgment to be biased in any way whatsoever. He had not realized that his "complex" was acting. He would not hesitate to point out a certain train of reasoning, and to explain, quite sincerely, that this was the cause of the final mental act,

his conclusion. That is, he would manufacture a train of reasonings and accept it as the cause of his belief.

Thus a teacher who has punished a child for some fault committed at school would explain that she had been actuated by a desire for the child's good. This is really a "revenge complex" built up by the many little annoyances the child has caused her. It may quite possibly have been the most important basis for her action.

So of wishful thoughts dominating in the matter of bargaining or of paying debts. Too often a "money complex" is the chief determinant of conduct. This sort of self persuasion or deception, which attributes a complex determined opinion or action to some other and generally more acceptable cause, is known as rationalisation.

It permits the none too altruistic tendencies of some of our complexes to express themselves under the guise of activities having their source in thoughtful consideration and moral precept. At the same time it allows us to hold to the pleasing opinion that our behavior is directed and controlled by purely intellectual forces instead of by what we slightingly term "impulse."

Conflicts arise between the powerful complexes represented by morality on the one hand, and, on the other, by certain of the selfish, lower animal erotic desires, or —so to speak—savage impulses.

An exaggerated activity on the part of the repressing complexes sometimes occurs. This is known as "over compensation." An exaggerated piety and morality may result after the repression of powerful temptations; an exaggerated sympathy may conceal repressed inclinations to brutality; or an exaggerated affection may cover unconscious complexes of hate.

In time a repression gives way. A compromise is formed which consists in allowing the repressed psychic activities belonging to the maternity-complex, for example, to come before consciousness, but in an altered guise—namely as obsessions.

Everybody has complexes. The normal do not differ greatly from the sick or abnormal in regard to what these complexes contain. Neurotics are merely those who fall sick from the same complexes with which normal ones struggle.

While we should not permit ourselves to become over suspicious, nor to over-stress or unduly magnify mere mental peculiarities (so-called "human nature" in her more than ordinary moodiness or half revealments) or veiled or lightly sketched warnings, it is the duty of every one to take note of them and be alert to guard against what may become a gravely perilous matter. It may be merely emotional shock, alarm, terror, like a little cloud in the sky no bigger than a man's hand. Their occurrence complicates any situation. Particularly so when the barriers of self regulation are weakened or run down as in states of recovery from disease.

When *aware* of this, how shall we deal with it? One very good method is to sit down and write a confession to yourself and try to answer deliberately. Then make a critical survey of answers deduced. This does the one thing needful, it focuses the wandering impulse upon a point for new departure. Don't expect too much then and there; sleep on the situation. Much thus becomes cleared up. If these tendencies continue and recur, help from another is needed. Confer with an *expert*. The mere doing so jacks up the wandering impulses; awakens one's own powers of self direction.

Convalescent treatment is a long education. Proceed step by step and leave no raw edges; at least do no harm. The hard job is to keep the erring line of thought moving steadily in right channels.

No more helpful knowledge can be acquired than how to so enhance one's store of vigor by utilizing the feeling tides. The finest of the arts of life is getting on with people. To be of service you must first learn to get along with yourself, thus to fulfill your own expectation of yourself, and escape dread.

What is nervousness, and what are nervous complaints? This term comes up so frequently and with such diversities of intent; "does so much business" in explanation, description and excitement, that everyone needs, in self-defense, to get a fair notion of what the user intends or the hearer conceives it to be. No word —so it would seem—conveys such a wide variety of purposes about human ailments. It is called upon to do duty all up and down the scale of altered feelings, emotions, and their commotions.

They are very real distresses, but are based on so many unrealities as to causation and nature and the facts at issue. Another hazy phrase is "the heart of things," used to describe the inmost sources of feelings, beliefs, and intentions, as well as the principles of action, of conduct or behavior. Next to these in obscurity is the descriptive term: "on principle," as a guide rail to customary and commendable initiative. If we should determine to go to the root of the matter, of queer, strange, futile or disturbing situations, we can get excellent help from modern psychology regarding the feelings and their anomalies.

That, however, would require a good deal of special study; even to comprehend the terms used. When the nervousness and the nervous complaints are very persistent and disabling, it is well worth while seeking counsel of an expert, who is also a physician experienced in mental distresses. It is quite enough for our present purposes to learn that we are now supplied with a means of going "into the heart of the matter," of finding a way out, thus driving away clouds from our consciousness and removing the barriers to knowing where we stand now, or why we have fallen into mental and emotional tangles. They are, most of them, the consequences of faulty, loose, shallow, and misleading habits of thinking; also of interpreting inexplicable sensations as to pain, anxiety or other distresses. They are also due to inexact observations of simple enough happenings, circumstances and relationships to other people.

These are mental astigmatisms; eyes that need correcting glasses. When these nervousnesses are pretty severe they usually have arisen in disturbances of the machinery of thinking and feeling occurring long ago; as in childhood shock and wanderings away from straight paths of self defense and adjustment; of self adaptations to the complexities of social and domestic life.

Can we get ourselves straightened out and back into the even tenor of our ways? We can indeed, and many do so, especially those who are so blessed as to be under the guidance of parents of common sense, or families, friends and teachers.

If you were not so fortunate how much can you now regain of skill and certitude? Why, a very great deal. The difficulties of handling our own situations for ourselves are many. Some of us are unfamiliar with the processes of disease. It is hard to distinguish between the significant and the insignificant; and especially the true or physical feelings and the merely emotional.

One aim you can take; one effort pursue. Cultivate at all times imperturbability; balanced judgment. Remember that nervousness is merely one of the minor disorders of personality.

You often hear the boast "thank heaven I have no nerves." If so, you would be dead. Also you hear: "I have plenty of nerve," or: "He had his nerve with him";

that is his audacity or courage. Language is often devised to conceal thought. It surely does obscure, now and then.

It is enough for our present purpose to view nervousness as a state of disturbance among feelings giving evidences of confusions; losses of balance between the mental, emotional and physical realms. Also as the product of queer habits of looking at and of doing things. It is a state of being in which what we think of things differs widely from the things, influences, and effects on self, which should be in accord with human nature; of man as he is "at heart." That is as he was built and trained. Indeed the wonder is, not so much that many misunderstandings do arise, as that any understanding can be had at all. It comes to a question of how to interpret the effects of physical disorders or diseases, and how we react to them, whether they be painful or merely perturbing, in social, domestic, and industrial directions. We are here considering those personally afflicted with so-called "nervous complaints," as they manifest themselves in, or form parts of, states of weakness and of getting over them; from flabbiness to sturdiness. Included are varying degrees of impairment of physical conditions, as these contribute to states of depression or aggravate weakness and block the way to health. We may, by skilful management, get over them promptly, or escape the worst of their consequences.

We will assume—for example—that one has suffered from some degree or form of physical illness; and that it has lingered, become obstinate, but keeps going in vicious circles. The recovery powers have worked slowly as a whole or slowly in a part, and a group of exhausted organs, such as the regulating glands of the body, have been taxed by demands that are in excess of reasonable, for one's norm. Or it may be that one has been subjected to distressing conditions, shock, mental or physical, to starvation of cells, or to poisoning. All of these factors must be taken carefully into account in planning a cure.

Retraining the Constructive Emotions, Especially the Conquest of Fear and Dread

There must be a regenesis of self-confidence in the doing of things we wish to do, aim to do, and will to do. The essential thing is to cultivate courage, tempered with caution.

When below par in sturdiness our initiative is low. We are aware of our deficits and should use caution and strategy; just enough but not too much. When we have deliberated enough, have begun to hesitate, we must translate our power—whatever it may be—into action and make a start "somehow, somewhat and somewhen." Otherwise we "stay put" and stagnate. Now stagnation is the back-water, the reverse current. These may get the mastery over the converse or associated current. Then life forces subside and deteriorations begin. Moreover, you will not get food or fluid unless you go after them. If you don't, you fail to live—you starve. If you see others who have these essentials you must also get some. If there be too little obtainable you feel urged to help yourself to some that they have. This involves ethics, and risk, but you must have them, so you will be called upon to labor hard or display courage to seize some or you die. "And those will take who have the power and those will hold who can."

The first steps in childhood are taken only through obeying the urge to get there and back again, so strong as to accept some risk. A fall or two, or even a blow on the head is, after all, less destructive than to perish from thirst or hunger. Hence all have need to accept some risks; make trials, commit errors, manifest enough self-confidence and initiative, and take unescapable chances.

Man is moved to do, to make motions only through his emotions or feeling urgings. These include the wish, the will, and the right way, self-direction and control. Also the conscious purpose, the proper aim and plans. During health these urges and restraints just about balance each other.

When out of health we are usually conscious of weakness. We are instinctively aware of the need to use precautions and strategy. The tendency is for each to form habits of such caution that we distrust our urges to do; hence become timid; fearful of harm through our doings; and may err on the side of caution.

Many courageous ones likewise do so. A few become habitually timid. These require cautious handling but come to win fortitude. They must reacquire. How shall we deal with this excess restraint? The answer is—by making them go through the motions of aggression or attack. As the limbs perform in the doing of bold performances, new habit paths are formed. These are no easy chair exploits; no academic methods are of use. They should strike blows as with the cudgel, "knock the heads off the daisies."

In the case of some difficult men, the best results follow lessons in boxing or in fencing. In the average man, and also woman, the promptest boldness comes through actually striking something with the hand.

Good success comes by the physician or nurse holding up the open hand palm outward and the patient striking at this hand with his doubled first. The hand struck may be brought backward at first, then brought forward nearer and nearer, holding it firmer and firmer. This forms a splendid means of cultivating the muscle-joint sense of time, space and force exerted.

I can point with satisfaction to having re-made volitionally a score or more of self-satisfied pacifists whose harness of pride had begun to come loose. Frankly, they had become cowards. They were restored to normal humans by these mimic fist battles. Also they were induced to take lessons from a professional pugilist.

It was gratifying to note in them the growth of an expression of firmness and boldness; a commendable vanity. The story of their successes in the busy marts of men later proved interesting. Moreover, they actually exhibited gratitude as well as stamina.

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Furunculosis

In this short paper I have aimed to indicate what I have found of greatest value in my own experience in the treatment of furuncles. In the cursory summary I have given the usual procedures that are employed in the treatment of furuncles and furunculosis. The most important points that should be stressed are:

1. That it is unnecessary, even unwise, to incise a boil.

2. That if the pathology of the lesion is borne in mind and rational, physical and chemical measures are used to meet the clinical manifestations as they appear on the surface of the skin, there will result a rapid, painless life of the boil and recurrences rarely will be observed.

3. That for prevention of multiple infections and a chronic condition the physician should, 1, induce a good general physical condition; 2, give rational treatment of the original boil; 3, prescribe proper hygiene of the adjacent skin; 4, prevent dissemination either through the blood and lymph streams or by means of infected fingers, clothes and other material.

To recapitulate, the greatest service that can be rendered a patient suffering from boils is to build up the general physical condition so that Nature's defensive mechanism may function at its greatest efficiency and all curative measures taken should be in agreement with the natural method for repulsion of infection.—Levin, *Med. Jour. & Record,* March 5, 1930.

Cancer of the Breast*

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It has frequently been asserted recently that the subject of cancer has been thoroughly impressed both on the public and the profession; that enough propaganda has been spread to impress them with the seriousness of the neglect of this disease; the admonition that the earlier these cases are brought to the surgeon and the radiologist, the better will be the results of treatment, is now alleged to be superfluous; but we must agree with those in charge of the city-wide symposiums, that much education along these lines is just as important now as it was months and years ago.

For, today, we are still getting cases of cancer that have been held too long by the general practitioner because he was not sure of the exact nature of the lesion. Again, frequently the patient is to blame for not seeking advice soon enough through ignorance or through false modesty.

Our specific subject as part of this symposium deals with malignancy of the breast. Of all the different types of carcinoma that may attack the human body, this is, without a question of doubt, the most discouraging. We will again revert to this subject a little later. Let us now consider the causes of cancer of the breast.

Many will take issue with me when I place at the beginning of the list as one of the main causes of cancer of the breast—heredity. I do not mean that carcinoma cells are directly transmitted from one member of the family to another, but to me there does not seem to be any question of doubt that there is a predisposition to cancer in those who have parents or near relatives who have suffered from this dread affection. The larger my observation becomes, the more firmly I am convinced that ancestral cancer is an important factor, especially when cancer affects the stomach or breast. Looking back over my records I can tell you of many instances where some embryonal nest has been implanted in those who have developed cancer of the breast in later life. In order not to tire you with too many instances, I want to recall to you a family in which two aunts of the patient died with cancer of the rectum, two cousins died of cancer of the breast and my patient, a comparatively young woman, died of cancer of the breast two years after a very radical removal. In another family, the grandmother died of cancer of the breast, while the mother of the patient and also her daughter died of the same affection. There are many more cases of heredity of cancer that are not uncovered, since of all the diseases to which man is heir, cancer is the one that is held in the greatest secrecy, because there is, somehow, a deep-rooted idea that it is discreditable for one to die of cancer. You will admit that these instances seem to be more than matters of mere "coincidences."

Traumatism has always had the first place in the causation of cancer of the breast. While we often get a history of injury and of cancer following it, upon close questioning we find that at times this cause is farfetched. There is no question that continued traumatisms are the cause of cancer. We have seen this exemplified in those who smoke clay pipes, resulting in cancer of the lip; or a sharp tooth continually abrading the tongue, becoming one of the commonest causes of cancer of the tongue. A single traumatism may cause cancer of the breast, but such cases are rare. We really ought to have less cancer of the breast now than formerly when we consider the fact that the women nowadays rarely wear corsets. Look back to the period of the early 90's and call to mind the "harness" women wore and the traumatism resulting from the pressure of these corsets against the breast. Also, thanks to better nursing of today, we have fewer breast abscesses than formerly. Up to the present time I have never seen a case of cancer engrafted on the former scar. This, I believe, is an important observation, because one would expect this to be a common source of cancer.

Once a tumor is felt in the breast it is important to admonish the patient not to continually palpate the breast or to massage it. Here great harm can be done by the patient or her friends, attempting to rub away the growth. This meddlesome interference would come under the category of continued traumatism which, as has been stated before, should always be avoided. Patients themselves usually handle their breasts too roughly when examining them.

Mothers are more prone to carcinoma of the breast than the nulliparous, but cancer of the breast in the latter is met with all too frequently. When cancer is found in the single girl, it is usually rapid in onset and rapid in its destruction of life. The younger the individual the more malignant is the cancer apt to be. This applies to cancer located anywhere in the body. It has been my experience to see young patients die within a year or eighteen months after the onset of the disease. One of the most rapid types coming under my observation was in a young married woman who developed cancer of the spinal column within a year following amputation of the breast.

Syphilis is probably not a cause of cancer, but the two may be co-existent.

Treatment

A lump found anywhere in the breast should be removed. Very often one can tell from palpation alone whether the tumor is malignant. Every excised tumor should be bisected and the surgeon should decide whether the breast should be removed. His diagnosis can then be confirmed or rejected by means of a frozen section, but a frozen section diagnosis to be worth anything must be performed by those having a large experience in this line of work. In order to obtain this proficiency every kind of tumor or tissue removed at operation should be subjected to frozen section examination. The lumps referred to above are small, usually placed in the fibroma, adeno-fibroma, or cystic group without enlargement of the axillary lymph nodes. There is also another group where the tumor is large, adherent to the skin and about which there can be no doubt as to the diagnosis. In these cases one will always invariably find enlarged axillary lymph glands.

Before any operative treatment, the patient should always be subjected to deep X-ray therapy, and radiographs made of the lungs and long bones, if there is any suspicion of disease there. The patient should receive several treatments before operation. I believe that this does an inestimable amount of good in helping to localize the disease and in many cases I have seen a decided reduction in the size of the growth. This will render

* Read before the Mt. Sinai Hospital Clinical Society, January 21, 1930.

the patient a much better risk and reduce the number of metastases to the lungs and the spinal column. X-ray treatment should always be used after operation; treatments to be given as many times as necessary to complete a full dosage.

The operation has been divided into the radical and conservative method. Today I am performing very few radical operations on the breast for carcinoma, but be assured that I have not entirely discarded this procedure. Age influences one greatly in the selection of the patient on whom one is going to perform the radical or conservative operation. For patients this side of 40 it is best to reserve the radical operation, but beyond 45 very few will require other than the removal of the breast alone with the removal of the palpable lymph glands. By this is meant the conservative operation. I know of the microscopic work that has been done on the pectoral muscles and the finding of cancer cells in these structures. Not unmindful of this, I still believe, however, there is a great field of usefulness for the conservative operation, because with advancing years there is a greater deposit of fibrous elements in the tissues, and the tumor becomes so encapsulated and infiltrated with this tissue, that is rendered less malignant. It is not necessary to go into the details of the types of operation, but suffice it to say that the results from the removal of the breast alone have been as good as those in whom we did the radical and the super-radical operation. Another field for the conservative operation is in those cases where carcinoma affects the second breast.

Results

Notwithstanding the many cases on whom we performed the radical operation, we cannot count the five year cures on the fingers of one hand. In fact, I can't give you or present to you any cases that have lived five years after operation. I now look with suspicion on those who report five year cures. These cases were probably not cancer at all, but some form of benign tumor of the breast. No matter what type of operation one carries out, the ultimate results are bad, the patient dying from metastases, a recurrence on the same side, or an affection of the opposite breast. Here I want to cite a case in which I thought I had obtained a nine year cure. She happens to be the wife of a physician. Ten years ago she came to me with a small nodule in the breast. I diagnosed cancer and advised removal of the breast. The diagnosis was not accepted and I removed the tumor only and subjected the specimen to micsoscopic examination first. The report was returned cancer. The breast was removed. We were happy in the fact that the patient lived so long without further signs of trouble, of mestastases or recurrence; last year a cancer developed in the other breast. The conservative operation was performed and up to the present time there is no evidence of mestastasis. Therefore, I have no ten year cures to report. The average case lives three years after operation.

To recapitulate: In view of all these depressing details concerning cancer of the breast, it behooves us to be on the alert for the early recognition of the malady, because only in this way can we hope to improve the now not too brilliant results.

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Hearing of Boys Inferior to Girls

Results of a U. S. Pub. Health Service survey conducted among more than 1,800 school children for the purpose of determining the extent of deficient hearing indicate that boys suffer more impairment in hearing than girls, and that the left ear was generally better than the right ear.

Amputations and Artificial Limbs

A valuable feature of the discussion on amputations and their relation to the artificial limb reported on p. 807 was the opportunity given to surgeons and limb-makers to exchange views upon their common task. Patients were also present, chosen to illustrate how by combined efforts a limbless man could be made comfortable in his appliance while regaining much of his former mobility and force. It was stated that in this country 50,000 people had limbs amputated as the result of the war, and the knowledge gained by surgeon and limb-maker in the handling of this crippled and maimed population has resulted in a revision of values. In the early days of the war most of the well-known classical amputations were accepted as standard operations, and none seemed more secure of its place than Syme's amputation. But now that more than ten years have elapsed since the conclusion of hostilities, the time is ripe for an assessment of end-results.

One outcome of the experience which has been gained is that an end-bearing stump in the lower limb is regarded unfavorably. Mr. Max Page, who introduced the discussion, said that those who had seen numbers of cases would agree in condemning Syme's amputation, since a large proportion of these stumps did not bear the test of time, and in any case could only be fitted with a clumsy prosthesis. He had seen many Syme's amputations which had given good service, but had been obliged to reamputate others which were painful and had no functional value. Mr. Jenner Verrall, from his experience at Roehampton, also condemned the Syme's amputation, as did Mr. Langdale-Kelham. The end-bearing thigh stump, such as the Stokes-Gritti, was also deemed undesirable, but was said to be still popular in America, Canada, and Germany. In below-knee amputations, the most satisfactory stump was agreed to be one preserving 6 or 7 inches of the tibia, although even with 4 inches control of the knee could be obtained. For above-knee amputations, section of the femur about 4 or 6 inches above the level of the knee-joint seemed to give the best functional results when an ischial-bearing prosthesis was fitted. Mr. Max Page deprecated the custom of pulling on the nerves at operation and cutting them high up because of the danger of post-operative pain. It was best to crush and cut them about an inch above the level of bone section and inject absolute alcohol into the nerve-ending. Some surgeons, when amputating through the thigh, inject absolute alcohol into the sciatic nerve at an early stage, thereby producing a nerve block which diminishes the operative shock as well as lessening the prospect of post-operative pain. Emphasis was laid on the necessity of maintaining good tone in the muscles of the stump during the convalescent period and of avoiding joint contracture. It is obviously easier to fit a purposeful artificial limb to a stump with well-functioning muscles than to one with poor muscular control. During the war period considerable attention was paid to the cinematic amputations of Vanghetti, where muscles and tendons were more directly employed in the manipulation of appliances, but apparently this type of operation is now seldom performed, either because the results are uncertain or because of improvements in the artificial limb. There can be no doubt that for the successful reconditioning of a man with an amputated limb there must be complete cooperation between patient, surgeon, and limb-maker. Captain A. R. Maxwell, who took part in the discussion, stressed this team spirit and added that "A stump might be surgically good but prosthetically bad; but if it was prosthetically good it could not be surgically bad." Each patient presents a peculiar problem; if the surgeon plans the amputation to accord with the prosthesis to be fitted, and the patient cooperates with goodwill, success should be assured. Captain Maxwell in his own person provides an example of successful team-work; he has an artificial left arm, and although the stump is less than 3 inches long yet he can dig, plough, and use tools for wood and metal work.

The discussion has served a useful purpose in placing before the profession authoritative views upon amputations and their relation to the artificial limb founded on prolonged experience. If regret is felt that certain time-honored amputations have failed to maintain their traditional place in surgery, it must be remembered that this failure is only in response to technical requirements far more exacting than those formerly made. The artificial limb has been improved out of all recognition in mechanical detail and in convenience. Only those who have to wear an artificial limb know the great comfort of a light appliance, and the light metals have provided the makers with material for a strong limb of little weight. Until the war the question of amputations was largely academic; surgeon and limb-maker worked in isolation, and little progress resulted. Indeed on the continent a type of artificial limb frequently fitted was of the same pattern as that originally designed by Ambroise Pare in the sixteenth century. The advance made during the last dozen years or so in treating the limbless and providing for their comfort and usefulness is manifest.—*Lancet.*

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Developmental and Corrective Exercise as Illustrated by the Work of Neils Bukh of Denmark

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Though I have never seen statistics on the subject I believe lack of adequate exercise is responsible for more deaths than is tuberculosis or cancer, and that this is especially true in the years between 50 and 70. This underlying cause of death is usually not diagnosed, partly because so many physicians are not trained to recognize it, and would not know what to do about it after diagnosis. Also, many patients would rather have something done for them than learn to save themselves by exercise, and many others are so enmeshed and devitalized with their individual routines that they have nothing left with which to help themselves.

By way of illustration, the "failing heart of middle life" is often an undeveloped heart, or, even more often, one in which good muscle has been allowed to deteriorate. If such a heart is called on suddenly to keep up with other muscles in saving a body it fails. This is more surely true if there is 50 pounds more or less extra weight. The weight could have been prevented by exercise, is a source of toxemia during ordinary life, and a cause of death when emergency calls.

An inflexible chest, preventable and curable by exercise, in emergency cannot expand and contract; therefore the lungs cannot take care of the increased amount of blood, and the heart fails. Given an inflexible, contracted chest, there follow usually a "fallen stomach", sagging intestines, "movable kidneys", and ptosed pelvic organs, with the possibility of all their attendant acute conditions. And again, most of the accidents to people between 50 and 70, from slipping on a rug to being run down by an automobile, should be laid not to age, but to the habit of inactivity, and therefore slow response to reflex stimulation. Ten pounds on an abdomen is an awkward load, and not springily carried by one whose joints have become fixed in the postures of sedentary life, whose muscles have deteriorated, and whose feet have flattened. People with handicaps preventable or curable by exercise are thus unprepared for emergencies of illness or accident, and they are likewise unfit for full, free living.

As a physician, my work lies more with those unfit than with those acutely ill. I have therefore seen much of people calling themselves "normal" who try to "express themselves" by the creation either of children or music or literature, in the social life, or in the dance, and who have failed. I hear people talk about "good posture", as the cure-all, who are too stiff to have the parts of their bodies in normal relationship when they lie flat, or are too weak to hold good posture, erect. Neils Bukh gives the solution of the problem in that he recognizes, and his exercises make possible, the prevention and cure of the hampering stiffness of joints, and the weaknesses of muscles, without which good posture and full health are impossible.

Neils Bukh is a Dane, and to understand his work one must remember that he is primarily not only a Dane but a patriot. He was born in the latter part of the nineteenth century, at a time when a group of truly great men were endeavoring to lead Denmark up out of the terrible poverty and desolation following the wars with Germany which culminated in defeat for Denmark in 1864. Through the Adult High Schools which were established throughout Denmark, the quality of the people was deliberately improved. And this was done largely by gymnastics. Bukh was brought up in one of these schools, beginning gymnastic training himself at five. Later he studied under the followers of Ling in the States Institute in Copenhagen.

He recognizes Ling as a great seer and teacher, and believes that his own work is in harmony with Ling's principles. He broke away from the followers of Ling, believing that they had missed the essence of his teaching, namely, that perfection of exercise should be subordinated to development of body.

Bukh's own work began in 1912 with a group of twelve boys. Now he has a beautiful and well equipped school which accommodates 150 boys in the winter and girls in the summer. In the summer he has classes also for foreigners, and students and observers come to him from many countries. He has been three times decorated, once by the King of Sweden, and twice by the King of Denmark.

In 1923 he came to this country with a group of students, and showed his work in many places, including the grounds of the White House.

The value of his work was recognized by Miss Helen McKinstry, Director of the Central School of Physical Education, now the School of Physical Education of Russell Sage College. In that school since 1924 his work has been taught by American graduates in Physical Education who have also taken a course in Denmark.

Five groups of American graduates in physical education from all over the United States have gone to Denmark for a summer course, under the auspices of the school above mentioned.

In the summer of 1929 I went with the group in order to study Bukh's work from a medical point of view. Mine are the observartions of a physician. Those who would really study Bukh's principles and methods, and the details of the exercises he teaches, should consult *Fundamental Gymastics* by Neils Bukh. This work has been translated, compiled, arranged, and adapted to American needs by Emily R. Andrews and Karen Vestudel from Bukh's original *Primitivgymnastik*, and has the sanction and approval of Bukh himself.

When I saw the work of Neils Bukh in this country I was impressed with a dynamic quality that could not be wholly explained by its corrective value, nor by the beauty and finish of the exercises.

The same was true in Denmark. The beauty of the coloring of the group of students with their fair hair and skins in their dull blue costumes, on the green grass of the large stadium, was not sufficient. Neither was the grace and harmony and perfection of the constant action, over a hundred students moving as one. I found myself wondering whether the man was pri-

marily a teacher of physical education, or a painter of pictures, and, if the latter, what was the secret of his power. It was not till I heard it from his own lips that I realized he was primarily a patriot, and that he had seen a vision of little Denmark following in the footsteps of little Greece, leading the world in development of body and development of spirit.

When I realized this vision I knew that he was using his detailed knowledge of the human body, and the effect of exercise upon it, and his dynamic ability in teaching, in order to create human beings worthy of a place in a living picture, which in turn should be able to inspire all those who saw it to work untiringly, not only for strength of body, for "full freedom" of body, but with "fine energy", for that "fellowship" without which no country can endure.

His aim is to accomplish the most possible for Danish youth in the shortest possible time. Therefore, he himself cannot spend time on individuals. His work is with those able to take group work in a gymnasium. The students who come to him he arranges in groups, on a basis of strength, flexibility, and ability to coordinate. Then he determines the mean, or average of each group, and adapts the exercise to the needs and ability of the average.

He realizes that when an exercise has been learned so that it can be done perfectly it has lost its corrective value, whether the need is a matter of strength, of flexibility, or of ability to coordinate. Therefore when the average of a group can "do an exercise" he passes on to something more difficult. No exercise he gives is in itself difficult for an average member of a group of his classification, with which he is working. For muscular development he relies on repetition of an exercise which is not difficult and involves no strain for this average member.

For this reason his method is universally applicable. Granted a well classified group, and a teacher capable of gauging the average ability of the group, exercises may be given which will be possible for all, and their repetition will develop even the best of the group. Bukh's theory seems to be, "Anyone who can walk can climb a slight hill. Not all can climb snow mountains. Here are numberless exercises in place of walking and climbing. Choose for each group the exercises suited to their present needs and ability, and increase them in number, in speed, in difficulty and complexity, as the group increases in ability and strength."

This theory is applicable also to groups of children or older people, and it is applicable in work with individuals having certain heart conditions, or paralysis, and with those convalescing from disease. Remedial work he leaves to others, and many graduates from his school are using the principles and exercises they have learned from him for such conditions. In those depleted, it sometimes takes a long time to develop enough muscle to make correction of a joint deformity possible. The sequence in corrective exercise, except in some paralyses, should be: first, development of enough muscle to force stiff joints; second, rendering stiff joints flexible; third, harmonious muscular development sufficient for daily living; fourth, development of reserve muscle strength.

In his own classes he relies on the power of rhythm, and the momentum of action in concert, to carry along the weaker and more awkward members of the group, for working through joint stiffness is not in itself exhilarating. When a class begins work, each follows his own rhythm and extent of swing. Later, as each approaches the norm, the group works as one, and the power of the rhythm increases.

Action in his class is continuous. Rest is provided for the arms during leg work, and for the legs during trunk work, and for the heart and lungs during training in the finer movements for balance and coordination. The repetition of an exercise becomes automatic, and is given over to the reflex nervous system, thus training this system, for he gives instruction in the next exercise while the last is still going on. Relaxation in action is accomplished partly by the variety of the exercises, partly by the gaiety of the teamwork, and partly by the voice, or intonation, or humor of the teacher.

He trains the heart by having it beat faster and more vigorously, adapting its resting time to the vigor of the exercise, and the strength of the average heart in the group. He develops the chest by pushing the respiration, believing that the lungs develop as the power to breathe is used. I could not fail to note the stimulating effect on both heart and lungs of the rapid, easy exercise, nor the cleansing effect of the free perspiration induced.

He stresses flexibility before strength, partly because many of the Danish boys and girls with whom he works come from farms, and have the stiff joints and strong muscles of their occupations. But also he places it before strength, I believe, because he knows that if a body is flexible, and works freely in general exercise, harmonious strength will follow as a matter of course.

The exercises are all "free", and therefore, though some are primarily for one part of the body, they each and all include the muscles of the whole body in follow movements.

Yet, in the exercise for *Flexibility*, by a choice of starting position he localizes the chief effect of an exercise, and protects a region not well muscled. This is especially true of some of the exercises for *shouder* flexibility which would otherwise increase a lordosis in a weak back. In these exercises there is no stopping place for the swinging motion, and therefore the effect is not only on the shoulder. When the tissues around it have stretched as much as possible, the effect is carried over to the chest, and the intercostal angle is widened; or to the back, which becomes more flexible. Thus one deformity is used to correct another.

He does not speak of exercises for the *feet*, but the feet are constantly in action in jumping, in dance steps, in balancing, and in combinations of all for the development of coordination. As they grip the floor in action they are used, developed, and not weighed upon and flattened.

The free, concerted, repeated trunk twistings, with and without arm flinging, and the lateral bendings, render the back flexible even in the upper dorsal regions, so hard to reach. Some of the exercises to free the shoulders also shorten the rhomboids. For the supporting muscles of the lower back and abdomen he relies at first on the fact that in free general exercise any muscle that is on stretch must work, and therefore develop. Practically all his commands are preceded by the direction to "lengthen the back", or "stretch the back".

Later on, for those harmoniously developed, stall bar work marvelously increases the strength of back, abdomen, arm and leg. His use of motion rather than of held positions is perhaps more in evidence at the stall bars than anywhere else. Span bending as an exercise soon becomes possible even to those who would find holding the position impossible or injurious, and the hypertension of the trunk is always at once counteracted by its flexion. Used in this way it of course greatly increases both the flexibility and the strength of the back.

To summarize, his teaching is of universal application, involving as it does the knowledge of the human

body, classification of students into groups having similar abilities and needs, and adaptation of free exercise to the needs and abilities of the average of a group, with careful steady progression. Always he keeps before his eyes the perfection of form of the child of six, and the "full freedom of the body" which one must acquire if one would have a tool fit for the use of a great spirit.

The Rehabilitation of Disabled Persons

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In 1919, New Jersey passed the first Rehabilitation law, to the end that its disabled civilians might enjoy the benefits of a coordinated service of treatment, vocational guidance and placement in remunerative occupations. New Jersey felt that it was good business to refit its physical handicaps just as big corporations think it is good business to salvage their waste products and make them bring in a return. The tin cup, the shoe-string and the lead pencil were not remedies for disablement. To render these physically handicapped persons socially content and economically independent, so as not to burden society, with its ever increasing load of caring for the downtrodden, was the goal of this munificent piece of legislation. It applied to all individuals who were handicapped, by virtue of disabilities incurred through disease or injury or through congenital deformity.

Eleven years have passed since the inauguration and application of these humane measures. The problem has resolved itself into one that is chiefly industrial, that is, the larger number of handicaps were those injured in industry, and it is the injured workers who have reaped the chief benefits of this legislation.

In the execution of our program a definite policy has been pursued; that is, physical rehabilitation has been made the fundamental principle in the management of our cases. Vocational guidance and placement have been made more feasible after proper treatment and medical advice have been given.

Not the least agency in the successful treatment of these cases was the use of physical measures. The successful rôle played by physical therapy in the reconstruction and physical rehabilitation of our disabled soldiers and sailors following the great war warranted its application to the great body of civilian disabled. Furthermore, the character of the disabilities lent itself more readily to the use of physical measures than any other remedial agent, although other forms of diagnosis and treatment were available and employed where indicated.

The development of this branch of surgery in which the maximum functional restoration of the injured part consistently possible is the objective, has been most marked in the past eight years. In this development, the rehabilitation clinics have played a major rôle. By the treatment of thousands of cases, they have demonstrated the efficacy of this comprehensive program of treatment which embraces the normalizing of human tissues and members through corrective surgery, physical therapy and physiological use of the affected parts. It has had an educational effect on the medical profession, hospitals and other institutions through this demonstration and these agencies have installed equipment for the proper and thorough treatment of injury cases.

The treatment in the clinics has been confined to corrective surgical treatment and after treatment. No case involving first aid or initial surgical treatment was accepted for care. At all times an ethical professional attitude has been maintained. The confidence and cooperation of the physicians and hospitals is reflected in the large number of cases referred by these agencies. Of the 7,684 cases treated, 4,727, fully 60 per cent, were referred by these two groups.

On the completion of treatment, the individual either effects his own restoration to a job or is referred to the vocational director for training and placement.

When it is realized that 7,684 cases were thus rehabilitated it would seem that the program and procedure were quite justified. Of this number 2,434 had such severe disabilities as to require treatment for a minimum of three months to two years.

The large number of handicapped individuals who come before the rehabilitation clinics during the year may be divided into three classes: namely, those who are so overwhelmed by the physical nature of their handicap that rehabilitation becomes impossible; those who though physically well are overwhelmed by their mental state, which causes hopeless invalidism, and thereby prevents rehabilitation; and those individuals who are between these two extremes and represent the large number of cases with varying degrees of mental and physical disabilities who must be assisted in making their adjustments in order to become self-supporting.

Physical rehabilitation is a large problem, but the larger and far more important problem is that of education. The handicapped must be informed of his limitations; the outside public, especially employers of men and women, should be apprized of the industrial possibilities of these handicapped individuals.

The general principles of the placement of handicapped persons in remunerative employment recognize, first, the importance of a thorough physical examination prior to placement; second, determination of the individual's work capacity, and third, having determined his limitations, it is necessary to determine if the job requirements exceed the individual's capacities.

A thorough physical examination prior to placement is most important. It points out the possible weaknesses or exaggerations in the person's own mind concerning his ability or inability to perform certain tasks. Very often an individual obligates himself to enter a life of invalidism or a vocation far below his physical and mental capacities and hence often less remunerative. The following case is illustrative of this phase of the problem:

Case 1.—Male; age 33; occupation: carpenter.

This man was referred to the clinic for placement. He complained of inability to work due to palpitation and irregularity of the heart beat. Upon examination this was found to be due to a sinus arrhythmia, a physiological condition not affecting his ability to perform any work. The condition was determined only after a complete examination including electrocardiographic studies. The patient was advised to return to his former employment, the job he knows best and for which he had been trained.

In addition to the physical examination, the work capacity of the individual must be determined. This is nothing more than the vocational application of the "cardiac reserve" which is estimated physiologically by the physician. The determination of work capacity is based on a prolonged practical demonstration on the part of the patient of the ability to perform varying grades of work. The vocational application of the "cardiac reserve" is illustrated by the following case taken from the Curative Workshop of the New Jersey Rehabilitation Commission at Newark, New Jersey.

The Curative Workshop is a carpentry shop where wood objects, such as toys, furniture, cabinets, etc., are made, requiring varying degrees of physical effort in accordance with the process engaged in; e. g., the lightest process is that of the use of the coping saw, cutting out stencils from three-ply veneer, and the painting of toys or other objects. A second and heavier process is that of "standard practice," which includes the use of the plane, hammer, saw and file. The third and heaviest operation is that of general carpentry.

Case 2.—Male; age 28; occupation: furrier.

This man had an old valvular lesion and had been employed as a furrier. Due to shortness of breath and loss of weight as well as general weakness, he was forced to give up his work. He applied to the Rehabilitation Commission for placement, and after examination was sent to the Curative Workshop to have his work capacity determined. After two months in the Workshop this man demonstrated his ability to undertake physical work analogous to "standard practice," whereas whenever he was put into the general carpentry class he immediately showed signs of breaking down. Having gauged his work capacity we have been able to recommend him for placement as a press feeder, which vocation he is filling satisfactorily.

Summary

A rehabilitation program, to justify itself, must show a large enough volume of cases to warrant the expense of its maintenance. While it is the moral obligation of the State to care for its under-privileged, still not too great a burden should be shouldered by the public who contribute in a fair measure to private and public philanthropies for the social welfare of those that require that aid.

It must not duplicate the work of private agencies nor of medical persons or institutions, though it may well cooperate with these agencies.

It must not be restricted to a small class of individuals, but its service should be offered for the greatest good to the greatest number.

Our program seems to meet these criteria.

Discussion

Miss Helen McKinstry (Director, School of Physical Education and Hygiene, Russell Sage College, Troy, N. Y.): I have been deeply interested in Niels Bukh's work since I first saw him and his group of Danish students at the Town Hall in 1923. For 23 years I had been teaching Swedish gymnastics, and each year growing more dissatisfied with the results accomplished. W. Curtis Adams, of the Adams Place Sanatorium in Pompton Lakes, N. J., with whom Dr. Bradford was then associated, had given me a new slant on exercise, and from 1916 to 1923 we had been making radical changes in our gymnastics. Niels Bukh's work epitomized the method and objectives for which we had been working.

Niels Bukh and his group spent a day with us at the school, and as a result of this contact one of his students spent the remainder of the year with us. Since 1924 some member of our staff has spent the summer at the school in Denmark. I personally took the course in 1926.

At our school we make three annual medical, anthropometric, and orthopedic examinations of each student. The results of the Bukh work, as shown by these thorough examinations, were enough to convince us of its value.

The rapid improvement in general conditions, and in correction of muscular and joint maladjustments, and the exhilaration and keen enjoyment the girls find in the work, have led us to substitute Fundamental Gymnastics for all formal class work given in the School. I consider this work has great corrective value as class gymnastics, and it can be used to as great advantage when adapted for individual corrective purposes.

Miss Emily Andrews: I do not know how I can say more of this work than to show the result of 2 or 3 years' training. The exercises which these girls have done have to be seen and studied more than once to note the effect on different parts of the body—how starting positions may be varied to suit individual cases, and also how to adapt the exercises to the group or to special individual needs. Those who see the work only once or twice fail to note the possibilities of adapting it to correct maladjustment of posture or fail to see that through the rhythmical quality of the work not only harmony of line but grace and freedom of bodily movements is secured.

Dr. Harry E. Stewart: I am very glad indeed that this Society has had the privilege of hearing this paper and is showing interest in this line of work. It has a very valuable field. It is preventive medicine in the best sense of the term, for many postural defects can be corrected in early life. I have heard something of this work from the graduates of our own school in New Haven.

There are, however, two or three points on which I differ with Bukh. In the first place, nearly everything discussed tonight has been covered in American posture training; the work of Dr. Anderson and Mr. Kipputh at Yale, Mr. Posse at Boston, and Miss Lillian Drew of New York has covered nearly all of this field; but Bukh in Denmark has done more in making it more pleasant and easy, and, as Miss McKinstry has said, the pupils take more interest in it.

The nomenclature of the exercises seems confused. How many of you in the audience, if you had stood up and followed the commands of the teacher, could have done the exercises? They are not in any sense self-explanatory; they require trained pupils in this particular line. I don't think there are three persons here who could have followed out the exercises by the commands. That seems to me a weak point in the group of exercises.

Consider the lateral trunk bending, which the teacher explained was for the upper dorsal region. As a free movement, it is executed largely by displacing the pelvis to the opposite side. It is not unless the pelvis is fixed that the flexion occurs in the upper dorsal region, and I think that some of the formal work which the pupils do not like gives rather better results than the work you have seen tonight. This, however, is a new view point, and the pupils like it and will persist in it longer than they would with the more formal work; but I believe the work Miss Drew has done is on the whole more beneficial. The possibilitity of sacro-iliac strain in any group, such as the Danish, which stresses flexibility so much, must be considered.

Dr. A. Bern Hirsh: After many years of effort, it continues to be a matter of deep regret that our profession as a whole, the land over, has taken relatively so little interest in these essential methods of preventive and corrective exercise.

I had the pleasure of being in Copenhagen in 1926, when a European Conference was held on the subject of school-child welfare methods, delegates attending from all parts of the continent. When this subject came up on the program, it was interesting to note the attention paid to it by leaders from all countries, showing how all of Europe was exceedingly interested in these methods that Dr. Bukh had brought forward. I speak of this to express the hope that what was done this evening may start a widespread interest throughout the metropolitan area, so that we may be able to arouse other parts of the country and bring about general adoption of these exceedingly valuable methods.

As to Dr. Kessler's work, I am very glad to know that the New Jersey Commission so early recognized the relationship between occupational therapy and physical therapy. In the United States Public Health Service we placed both departments under an officer called the Reconstruction Officer, who prescribed occupational therapy in close relationship with physical therapy.

Dr. Heinrich Wolf: The demonstration which we have just seen was certainly very interesting. I believe, however, that we should not confuse these exercises with the Swedish exercises or those which we used to do in Germany. They were done for the purpose of increasing the strength. They were done snappily, with an expenditure of a good deal of force. The exercises which we have seen tonight are swinging motions.

I wish to sound a word of warning against the exaggerated expectations when the method of Ling was in vogue. It was hailed as if it were capable to save humanity. Though there is no question that such methods can do a great deal in maintain-

ing the health and vigor of people, the expectations from the therapeutic point of view were far greater than the performances. There is no question that because of the exaggeration of their value as curative agents the progress in the use of such therapeutic methods was more and more neglected as the years went by.

This does not mean to minimize the possibilities of these exercises in the treatment of joint diseases or poliomyelitis.

D. K. G. HANSSON: An analysis of artificial physical activity will show that we owe most of our progress to the profession of physical education, which has often been obliged to work against bitter opposition from the medical profession.

Ling in Sweden, Jahn in Germany, and Jaubert in France had to work against the medical profession instead of receiving help from it. I believe things are changing, when, as tonight, one physician gives us an excellent review of one system of physical education and another physician shows us the application of physical culture in a very original and scientific way to his medical practice.

The recreational and corrective value of Niels Bukh's system of gymnastics may be discussed in two parts: The first part is the recreational value. I believe this is the strongest point in Bukh's system. He brought Ling's system up to modern times. He put in pleasure and diversion, and thereby made it attractive to youth in all countries.

The beginning of Niels Bukh's work was in a Teachers' Normal School, and his idea was to promote physical exercises for Denmark's rural population. His aim was to supply a system of exercises for strength, speed and balance—which is exactly what a muscle-bound farmer needs during and after adolescence.

Bukh, who was brought up in Ling's school of gymnastics, replaced the rigid attitudes of position by rhythmic movements. We can therefore call Bukh's system a school of motion, while Ling's School remains a system of position. This brings up the comparison between exercises of motion and exercises of position for corrective purposes. I admit that Bukh's exercises fulfilled admirably their aim in limbering up heavy muscle-bound individuals, but I should hesitate to prescribe such exercises for young children or adolescent girls, or the average patient that we seen in an orthopedic hospital and whom we send for corrective work. I also admire Bukh's understanding of phylogenesis which Jahn and Jaubert neglected. With this, I mean that Bukh has not neglected the phylogenetically younger muscles. You probably all know that muscles performing exercises toward the center of the body are much older in function, i.e., the human body is strong in flexion and weak in extension. We are born in flexion, and old age sees us again in flexion. Hand in hand with this phylogenesis goes the specific morbidity of the predilection for injury and disease of extensors and abductors.

Bukh has, however, not taken into consideration the so-called geotropic reflexes, as explained to us by Magnus and de Klein. This subject deals with plants as well as animals and their growth in relation to environment. These investigators have shown that plants orientate themselves in regard to gravity along well defined laws. This orientation is called geotropism, and these geotropic reflexes, or righting reflexes, are responsible for ability to restore erectness.

I believe a system of position is more favorable in producing correction than a system of motion. I have not seen any reported cases corrected by Bukh's method. I have seen many helped and many cured by exercises of position such as advocated by Dr. Goldthwait in Boston. In this connection, I would like to warn against over-emphasis of external appearance. It is the internal organs that are of more importance than the external covering.

We all know how the position on horseback produces the bow legs of a cow-boy; we can usually tell a cobbler from his marked round back resulting from habitual position over his work; and we can all pick out the old army officer from his erect position.

I therefore believe that exercises of position are of known value when it comes to corrective work, and the exercises of motion still have to prove their value.

DR. HAROLD D. CORBUSIER: I don't agree altogether with everything that has been said, but I do wish to congratulate the Society for deviating from "sparks" and the generation of heat by electrcity, and introducing something a little different. When Niels Bukh first came to this country I was very much interested in his work, for I have always been interested in corrective exercises—not gymnastics, but exercises. I studied the method as much as I could by having seen it several times in classes in schools, and having seen Miss Andrews's good work. I was very much impressed and therefore we began in our private clinic to make use of these exercises by adapting them to corrective work, which can be done in a number of instances.

Take a case of scoliosis, which is rigid, as most of these spines are: the first thing you want to do is to obtain flexibility, and I know of no better way than by the use of some of these exercises, carefully supervised. We have found that by following the Bukh exercises we can adapt many of them, and that practically all rigid spines would be benefited.

Some one has said that these exercises are not adaptable to the public in general—they will not make us younger; but if we take a group of people and put them on these exercises from youth up, they certainly will improve their posture and strength if care is taken not to be too strenuous and over work the heart. Not long ago I saw, in the *Journal of International Surgery*, an editorial which stated that the proper development for the human figure was that of the Malay or South Sea Islander, or the Filipino, and not the sort produced by the army exercises—not the rigidity which they produce. Now, what I have to say is that that editor has probably only seen the army exercises from the standpoint of the stage, the parade of the wooden soldiers perhaps, and so gets his idea of "stiffness"; but he should know that during the last war we tried to produce flexibility by various exercises which differed from the old methods once employed in the army.

I think these Bukh exercises are very valuable and I would like to be able to study them better, for I am sure we can adapt them to a great deal of our corrective work.

Another point: I have noticed in all these exercises that no one has ever told the pupils how to stand, with regard to the feet. They are told to stand erect, in an easy fashion; but we must know that many people come to us with pronated feet—everted and pronated, and one of the first exercises is to get them to stand properly, with the feet straight ahead. I would like to know if that is made a point in these exercises.

I wish to congratulate the young ladies who took part in this beautiful demonstration.

DR. ARMITAGE WHITMAN: It is a great pleasure to be here this evening but I shall be very brief, not only because it is so late but for the best of all possible reasons, that I have very little to say.

Dr. Kessler's speech was a graphic presentation of a movement that should be made country wide. Those of us who have had experience with veterans know the inestimable importance of instituting treatment at once and of keeping continually before the patient's eyes the idea of the return to the job—if not the job, a job. A tremendous responsibility rests on the employers, who must be made to see that unless they will take back their partially disabled employees as soon as they are able to do any kind of work they will tremendously increase the universal burden of unemployment.

DR. STELLA BRADFORD; closing: I should like to say just a few words: Dr. Stewart spoke of the fact that the commands given to the young people who were demonstrating could not have been understood and followed by those in the audience. Those who demonstrated are advanced pupils, and could have done the work with no commands. Beginners are given commands in the simplest wording possible.

He said also that lateral trunk bending would not give flexibility in the upper back unless there was fixation, as he illustrated, of the hips. If the hips are fixed, I believe the flexibility of the dorso-lumbar spine may be increased, but not that of the upper dorsal. The lateral bending exercises shown, with one hand making pressure in the axillary region and the other bent over the head, certainly do increase the flexibility of the upper back.

It was said that we should be warned not to expect too much from exercises, because lack of health might be due to endocrine disturbance or infection. Of course this is true, but my paper was not on endocrines or infection. I was discussing the conditions that could be cured by exercise. Ling was regarded as the "savior of the world", as was said. He was, in a way. And if the younger people could all have Bukh exercises, it would be the best prevention of many ills, and, in a sense, "save the world."

It was said that Bukh had brought Ling "up to date." He himself says he has returned to Ling, that he follows Ling's principles, and that Ling himself did not depend on fixed positions for corrective work.

It was said that the Bukh exercises are recreational rather than corrective. Every motion which he gives is corrective of some definite condition. That it is corrective is proved by the changes in the pupils under his care. The recreational element is secondary to the free work, in unison. He stresses always the extension of the back and the extension of the knees, in describing the position the students should take before beginning exercise, yet the freedom in exercise is almost that of animals at play.

If ever the human race is raised to its highest practicable level intellectually, morally and physically, the science of medicine will perform that service.—RENÉ DESCARTES.

Medical Times

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Cancer

Not more eagerly does the patient astronomer watch the long night through his telescope for a new planet than does the lonely research worker hope against hope that eventually the secret of the origin and growth of cancer will be revealed to him and with it the cure of the fatal malady.

The daily press exploits almost weekly some premature report of a new discovery by the devoted toiler in the laboratory—the true altruist of our profession. Before us, as we write, is such a communication, with the high-sounding heading: "Cancer Detected by Means of Dye." Would that it were so!

We hark back over a quarter of a century, when, as secretary of the Memorial Hospital, hardly a week passed without offers from enthusiastic experimenters to try out sure cures in our institution, all of which had to be respectfully declined.

What untold disappointments have sufferers from that mysterious foe experienced through all the years!

The Society for the Control of Cancer has contributed unceasingly to this "noble experiment," but as yet it is only groping in the dark, like the rest of us.

Few, even in our own profession, realize what the earnest and conscientious workers in the Memorial Hospital are doing with scalpel, as well as with radium and the Roentgen ray, to mitigate the sufferings of the vast number of patients over whom hovers the shadow of death.

It is a tragic history, dating back for centuries, this fight aginst the enemy of mankind, but we still hope that some day we shall conquer.

Believing, as we do, that surgery is still our best bower in the treatment of early and accessible malignant disease, there remains the large proportion of internal cancer which still baffles us. Still do we cherish the hope that, as in other affections that long frustrated us a remedy will yet be discovered to cure cancer. Confidently do we look to the laboratory to disclose it, though we shall not live to see it.—H. C. C.

The Independent School's High Rank

We said editorially last month that the type of medical school system for which Dr. Abraham Flexner, more than any other man, is responsible, could be outclassed and overshadowed. If one accepts as a rough-and-ready test of the matter the fate of graduates of the Flexnerized and of the independent types of schools before state examining boards, one will find much relevant data in the article on State Board Statistics for 1929 in the April 26 issue of the *Journal of the American Medical Association.*

There one will find, for example, 2 graduates of the University of Pennsylvania out of 153 failing to obtain licenses in examinations held in 26 states, with no failures on the part of 166 graduates of the Jefferson Medical College to obtain licenses in examinations held in 28 states. One will also find 9 graduates of Columbia University College of Physicians and Surgeons out of 112 failing to obtain licenses in examinations held in 13 states, with 1 failure out of 108 graduates of the Long Island College Hospital in examinations in 4 states, Comparing Tufts College Medical School with the Boston University School of Medicine, one notes 4 out of 141 Tufts men failing in examinations held in 15 states, and 4 out of 46 Boston University men failing in examinations held in 8 states.

Thus it is seen that the independent schools can outclass scholastically university schools in the same districts.

Affiliation with a university does not settle, *ipso facto,* this little matter of superiority.

For ourselves, we shall continue to bet on the independent schools.

The Doctor's Wife

In the words of Dr. William Marshall Urban, Professor of Philosophy at Dartmouth College, people are finding it increasingly difficult to talk about such things as ideals and values without sticking their tongues in their cheeks. "For several decades now Modernists have tried to detach our values from the magnificent spiritualistic tradition with which they have been bound up, and to transfer them to what they call the more solid foundation of naturalism and realism." The result of all this has been moral and intellectual futility and indecision.

It is interesting to relate this line of thought to the doctor's home life. The wives of the practitioners of the past did not suffer from the indecision that characterizes the modern mind with respect to ideals, loyalties, devotion, principles, etc. Particularly in estimating the part played in the past by general practitioners in the care of the sick, their wholly admirable wives can-

not be left out of the reckoning. They always cooperated in one way or another, directly or indirectly, in the general responsibilities and hardships, moral and physical.

Will the general practitioner of the future easily find any self-sacrificing (!) woman of his own social class ready to respond uncynically to anything comparable to the old demands? Would not such a woman be a practitioner herself, if anything?

The times change, and we change with them.

Very well, but what, then, are the prospects of the new social regime? How much of a success will it be for all concerned, and for medicine?

Sexual Deterioration

While interest in things erotic seems to have increased of late, many signs point to a detrioration in the sexual *power* of the race. Petting, near-fornication, real bachelorhood, autoeroticism in one form or another, homosexuality, literature of the "vicarious" order, and mere talk seem to serve most of the sexual purposes of our "flaming youth." Late marriage is another straw, and this is not determined wholly by economic consideration. Early impotence is a commonplace. The drop in full-term births and miscarriages is not altogether a matter of birth control. Many of the sexual phenomena of the day are best accounted for on the ground that the young people of to-day are not so strongly sexed as their progenitors. We suppose this is one of the effects of our industrial civilization, which is sapping some of the energies of the race.

Confirmation of these views is to be found in some recent books. Kenneth Ingram, in *The Modern Attitude to the Sex Problem,* suggests that a new type of young person is evolving which is not very keen about sex on the physical level. He thinks that while this type does not emphasize sex, indeed regards sex as a minor rather than a major incident, there is an ability to respond to the appeal of either sex! Surely this effete "modern" type cannot be said to be strongly sexed in the old-fashioned sense.

Then Nathan Asch, in *Pay Day,* reveals "three-fifths" of the young people of New York preoccupied with sex but "too impotent to accept sexual satisfaction when it is thrust upon them." "The day-dreams are very nasty and the activities very tame and dull. One's general impression is a staccato nightmare of sick jellyfish, a Limbo of nausea."

It is the very weakness of the age, sexually speaking, that accounts for its obscenities, for it is impotence that most desires unlimited indulgence, most longs for libidinous orgies.

Property Versus Life

Deaths due to automobile accidents are increasing. The death rate from this cause ranges from about 13 to 28 per 100,000 of population in 78 large cities of the United States (population nearly 33,000,000), Washington D. C., showing the lowest rate and Cleveland, Ohio, the highest rate.

Despite hypocritical pretenses, property rights take precedence over human rights. Manufacturers continue to pour their products into the streets, yet limitation of the automobile output, the obvious cause of a tragic situation, is unthinkable. Public highways are literally flooded by taxicabs, dumped by manufacturers who have to get rid of surplus cars.

Health and police authorities are helpless, all pleas futile. The modern Juggernaut continues to crush its victims by the thousand. Meanwhile complete cynicism rules in responsible quarters and the dividends mount *pari passu* with the mortality.

The profits are sacred and there is nothing to be done; it would injure big business and that settles it.

Miscellany

LAUGH AND SMILE

Laugh and smile. If you have a pain
Forget it for a little time.
While you're here see the funny things,
Read about the bright things,
Talk about the light things,
  Leave the gloom behind.

What's beyond we know not, but we will hope—not fear.
All we really know is
That we are staying here.
Perhaps for a short time,
Perhaps for a longer time.
So see the bright things,
  And smile—laugh and smile.

Laugh with your lips—in your heart grow a smile.
Forget all the solemn things,
See only the bright things,
Look for the happy things,
  And smile—laugh and smile.

And when at last your time comes
To spread your wings and fly,
Keep a smile upon your face,
Go with a happy cheerful grace,
To meet your friends in that new place,
  With a smile—laugh and smile.

Correspondence

Medical Psychology

To the Editor of THE MEDICAL TIMES:

For a good many years my work has been largely among elderly people, chronic "shut in" cases who so frequently become gloomy and depressed.

Many of these cases are of a strongly religious type, and devote much of their time to scriptural reading and to solemn and often depressing meditation on their future state.

Such reading and meditation, when carried to the point where the bright, cheerful and funny things of life are overlooked, makes their life not only more dreary to them, but creates an additional burden for those who have the care of them.

Not long ago I saw a woman who has been confined most of the time to her room and bed for nearly ten years due to partial paralysis from sciatica.

She said to me, "Doctor, I get so blue and despondent that I wish I could die. Can you not give me something which will brighten me up?"

I told her I would send her a prescription, which I did, and am inclosing it for the possible benefit of some of our solemn and too serious doctor friends, with the assurance that if they will always go into the presence of these patients with a smile on their faces, it will do the patient more good than medicine, and if they can induce these people to take this prescription they will lose many of them as "patients" but keep them everlastingly as friends.

R. M. GRISWOLD, M. D.

Kensington, Conn.

The Physician's Library

Physiology and Biochemistry in Modern Medicine. By J. J. R. MacLeod, M. B., LL. D., D. Sc., F. R. S., Regius Professor of Physiology in the University of Aberdeen, Scotland, etc. 295 illustrations; pp. 1074 including index. St. Louis, C. V. Mosby Company. 1930. Price, $11.00.

The sixth edition of this standard work registers the new knowledge in physiology and biochemistry which the past three years have contributed, the fifth edition having been issued in 1926, while the author was still Professor of Physiology in the University of Toronto. The additions, which are scattered throughout the book, have not changed its size, since certain material has been eliminated, while the type used has been appropriately reduced in size here and there. The author graciously acknowledges the assistance of a number of his colleagues. The divisions of the book are into: I. The Physicochemic Basis of Physiological Processes. II. The Blood and the Lymph. III. The Neuromuscular System. IV. The Special Senses. V. Circulation of the Blood. VI. Respiration. VII. Digestion. VIII. The Excretion of Urine. IX. Metabolism. X. The Endocrine Organs. For comprehensiveness, thoroughness, authority and fascinating presentation of the basic facts of life as the modern physician must know them, this work marks the zenith of achievement in its field.

Pediatrics. By Isaac A. Abt, M.D. The Practical Medicine Series. Chicago, The Year Book Publishers. Pp. 448. Price, $2.25.

The latest word on pediatrics. A terse but comprehensive book covering every problem that may arise in the mind of the general practitioner and specialist. Every topic is thorough, well written and up to the minute. It contains the most recent knowledge on the diseases of the newborn, infant feeding, nutritional disorders, gastro-intestinal diseases, infectious diseases, parasites, rheumatism, disease of the blood, heart, tuberculosis, syphilis, respiratory diseases, ductless glands, nervous and mental diseases, genito-urinary diseases, etc. Highly recommended.

Infant Nutrition. A Textbook of Infant Feeding for Students and Practitioners of Medicine. By Williams McKim Marriott, B. S., M. D., Professor of Pediatrics, Washington University School of Medicine, and Physician in Chief, St. Louis Children's Hospital, St. Louis. 53 illustrations, pp. 375, including index. St. Louis, C. V. Mosby Company. 1930. Price, $5.50.

The publication of this book is an event of great importance in medicine, because of the supereminence of the author in his field. A work on infant nutrition from his pen awakens anticipations which are fully satisfied by a reading of it. Marriott's special equipment and training as a physiologic chemist—his recent work on *Chemistry in Relation to Medical Practice* will be recalled—fits him peculiarly for the authoritative discussion of biochemical matters in relation to infant feeding, and then there are his personal contributions to the clinical art of nourishing babies, particularly in the successful use of concentrated formulas, although the book is very modest on that score; it is not one of those works written around one idea or performance. It is without doubt the most satisfactory modern presentation of the fundamentals of infant nutrition that has appeared, from the standpoint of the practical man hungry for this kind of guidance —and when one understands the fundamentals one can, in the author's own words: "intelligently meet any condition as it arises and be independent of 'rule-of-thumb' procedures." Marriott has taken all the bewilderment out of infant feeding for the practitioner, and, when one recalls the confusion through which we have gone in past years, that is an achievement indeed.

General Therapeutics. The Practical Medicine Series. By Bernard Fantus, M. S., M. D., Associate Clinical Professor of Medicine, Rush Medical College of the University of Chicago. Pp. 440, including an index of subjects and one of names. Illustrated. Chicago, The Year Book Publishers, Series 1929. Price, $2.25.

This is one of the excellent series of eight year books issued by The Year Book Publishers, covering all essential progress for the year prior to the time of publication. It is an indispensible volume for the practitioner who must know all about what is therapeutically worth while, for example, plasmochin, bismuth arsphenamin sulphonate, mersalyl, viosterol, the injection treatment of varicose veins, tribromethylalcohol, the bacteriophage, etc. The physical agents are well covered. The items are well selected and nothing of value, seemingly, has been overlooked. A therapeutic guide of the very highest value to the practical physician.

Minor Surgery. By Hertzler & Chesky. C. V. Mosby Co., St. Louis, Pp. 602. Price $10.00.

A very exhaustive and profusely illustrated treatise on minor surgical conditions. The first three chapters take up the subjects of sutures and dressings, bandaging, wounds, hemorrhage, and blood transfusion, a knowledge of which, though an elementary part of a surgeon's equipment, is quite essential in the practice of surgery. The presentation of the surgical conditions in topographical sequence, beginning with the scalp and ending with the lower extremity, besides a very elaborate index, makes it an easy reference book. It is not cumbersome reading as the type is large, and brevity characterizes each subject discussed. A very serviceable book.

The Diabetic Life: Its Control by Diet and Insulin. By R. D. Laurence, M. A., M. D., M. R. C. P. (London.) Fifth edition. Pp. 204 including index; 14 illustrations. Philadelphia, P. Blakiston's Son and Company, Inc. 1930. Price, $2.50 net.

This fifth edition of the well known manual for practitioners and patients by the chemical pathologist and lecturer in chemical pathology of Kings College Hospital, London, proves its popularity. It is based upon the use of the so-called Line-Diets and the Five-Gram Scheme, and contains many more detailed examples of such diets than the former editions. The Line-Ration Diet and the Five-Gram Scheme aim to do away with too elaborate calculations and this is one of the combination books which is intended to aid both patient and doctor. This author's food lists, it should be pointed out, based upon his own recent analyses, credit much less *available* carbohydrate to most vegetables and fruits than do those in other food tables in common use.

Yourself, Inc. The Story of the Human Body. By Adolph Elwyn, Dept. of Neurology, Columbia Coll. New York, Brentano's, 1930. Price, $3.50.

This book of 320 pages and 70 illustrations comprises 17 chapters, and is mostly of the parabolic type. Various cell groups and tissues are likened to the building trades, transportation systems, pumps and engines, and fuel, garbage-disposal and ventilation systems, with a central regulation system and reproductive organs. The idea of teaching biology by comparison with inorganic machinery is of course ancient and has been much exploited, both in technical and popular work. Under the latter head the present book falls but makes good collateral reading for a medical student and for the practitioner who would keep up with the times. There is no finality about a book of this sort for it must change with new advances. We no longer speak of the stomach as a kitchen or the kidneys as filters or liken nervous impulses to electricity, although such comparisons were once commonplaces. The similitudes used by our present author, however apt they may be today, will of course require some modification in the future. The book is well worth reading in any case.

Modern Otology. By Joseph Clarence Keeler, M.D., F.A.C.S., Associate Professor of Otology, Jefferson Medical College, etc. Philadelphia, F. A. Davis Company. 1930.

This volume, a first edition, contains 856 pages, 90 original illustrations and 15 colored plates. In his preface, the author gives the following reasons for publishing a text book. First, he is not satisfied with the scope of the present text books; second, his experience for the past 25 years, which includes over 1000 mastoid operations, he regards as too valuable to go unrecorded. The work comprises 12 parts and 45 chapters. The plan does not differ materially from that of other text books. The 11th section of 5 chapters is devoted entirely to children, comprising anatomy, development, examination, etc. There is a small but ample section on the medicolegal aspects of otology. To each section, the author appends a bibliography actually consulted. The index comprises 37 pages. The book holds every promise of success.

A Health Inventory of New York City. A Study of the Volume and Distribution of Health Service in the Five Boroughs. By Michael M. Davis and Mary C. Jarrett. Published by the Welfare Council of New York City. 1929. Price $2.00.

This is Study I of the Research Bureau of the Welfare Council. It is a thorough-going analysis of the state of the city's health and of its facilities for keeping people in good health. This work has been made possible through grants of funds to the Welfare Council by the Laura Spelman Rockefeller Memorial Fund (now the Rockefeller Foundation) and by the Commonwealth Fund. The book is full of information of the greatest possible interest to the medical profession. One is a bit startled upon discovering that there are 818 clinics operating in New York City. The work is a quantitative appraisal whereby one may usefully gauge the resources of the city making for health.

The Improved Prophylactic Method in the Treatment of Eclampsia. By Prof. W. Stroganow. Third Edition. First English Edition. Pp. 154. New York, Wm. Wood & Co., Edinburgh. E. & S. Livingstone. MCMXXX. Price $3.50.

This little volume is a translation into English of the third Russian edition and opens with an introduction to English readers by Dr. Haig Ferguson. It digests and formulates thirty years experience of Stroganow and his followers in the ultra-conservative management of puerperal eclampsia, with a maternal mortality of 10% and a fetal mortality of not over 20%. The seven chapters of the book deal with the older methods of treatment, the author's original method, pathogenesis of eclampsia, the author's improved method, the results and illustrative cases. There are also conclusions and other addenda. It is hardly necessary to emphasize that the publication of this volume is an event in the medical English speaking world and that no physician should fail to read it.

Hygiene For Nurses. By John Guy, M. D., etc., and G. J. I. Linklater, M. D., etc. William Wood & Co. New York, and E. & S. Livingstone, Edinburgh. MCMXXX pp. 212. Price $1.75.

This volume of 212 pages has been modeled on the syllabus issued by the General Nursing Council, and is adapted solely to British readers. It consists of two parts, the first comprising Water, Air and Ventilation, the House, Heating, Lighting, Sewage Disposal, Communicable Disease and External Parasites. The second part comprises Personal Hygiene, Food, Metabolism, Vegetable and Animal Foods, Internal Parasites and the Nurse in Relation to Public Health. Although written for professional nurses, and British ones at that, the book makes excellent reading for the layman. Much, in fact, of the subject matter should already be known to the graduate nurse, for whom it should be an excellent work of reference. But much of the contents does not seem to pertain to practical nursing, save in communities where the visiting nurse is a leading factor in the public welfare.

The International Medical Annual—1930. Editors: Carey F. Coombs, M.D., F.R.C.P.; A. Rendle Short, M.D., F.R.C.P., B.S., B.Sc. Publishers: Wm. Wood & Co. Pp. 598. Price $6.00 net.

To call this book a "Dictionary of Practical Medicine" is being very modest indeed, for it truly is a medical encyclopedia in miniature form. That so many invaluable and most recent advances made in the medical, surgical, genito-urinary, oto-rhino-laryngological, dermatological, ophthalmological, and other fields could be culled and fitted into a volume the size of this seems almost incredible. Its alphabetical arrangement, its beautiful and copious plates and illustrations, its most timely and comprehensive information, particularly the therapeutic data, on so many medical and surgical conditions that continually confront a physician in his daily practice, speak very highly for this book. Any doctor who professes to be abreast of the times will not fail to include this thesaurus of medicine in his library.

Diphtheria

Neither limitation, nor reduction of armament in the anti-diphtheria fight in New York State will be tolerated during 1930.

More armament than ever before—toxin-antitoxin immunization against diphtheria for thousands and thousands of little children—is the objective of scores of state and local official and voluntary health agencies which are mobilizing their forces to make the fifth year of the diphtheria campaign the most successful yet.

600,000 Children Immunized

To reach a goal of "a million children protected against diphtheria by the end of 1930" (600,000 children have already received the toxin-antitoxin preventive against diphtheria), the State Health and Education authorities, the State Medical Society, the Metropolitan Life Insurance Company and the State Charities Aid Association are assisting local authorities and agencies of some 30 cities to organize intensive efforts to secure the immunization by family physicians or at public clinics of the thousands of children as yet not reached. A particular effort is being made to protect those between six months and five years of age—the group which is most susceptible to diphtheria and in whom it is more likely to be fatal.

Statewide Offensive

From Long Island to Buffalo the offensive against diphtheria is sweeping on, apparently exceeding in intensity and in enthusiasm any previous organized effort of the enterprise.

Under the leadership of local health officers, committees of public officials and citizens have been at work for several weeks perfecting plans to launch a strong drive on the disease by means of extensive toxin-antitoxin clinics.

At the call of the State Health Department on March 11, these health officers met in Albany for an informal pooling of experience and exchanging of ideas on the promotion of diphtheria prevention. Dr. Thomas Parran, Jr., the newly appointed State Commissioner of Health, addressed the group. Campaign methods and accomplishments were outlined by the health officers of White Plains, Niagara Falls, Buffalo, Rochester and numerous other localities. There was a general favorable acceptance of the need ofr intensive effort to safeguard all unprotcted children.

Communities Organize

The scope of the movement may be judged by the fact that the following localities are now organizing immunization clinics: Buffalo, Utica, Syracuse, Troy, Albany, Gloversville, Lackawanna, Elmira, Oswego, Olean, Cohoes, Poughkeepsie, Amsterdam, Saratoga Springs, Watervliet, Herkimer, Ilion, Little Falls and Watertown.

Yonkers, White Plains, New Rochelle, Mt. Vernon and the rest of Westchester County.

Binghamton, Endicott City Johnson City and all of Broome County.

Jamestown, Dunkirk, Westfield and the entire county of Chautauqua.

Mrs. Marie F. Kirwan, Publicity Assistant, will help organize the diphtheria campaign in Buffalo during May, at the invitation of the city board of health and Health Commissioner, and will also assist in campaign publicity and organization in the city of Amsterdam at the invitation of the health officer, school medical inspector and medical society.

Campaigns are already well under way in Albany, Troy, Watervliet and Cohoes, where Dr. John M. Nicklas, Medical Field Secretary, is cooperating. A special field assistant, John C. Briggs, has been employed by the State Committee and loaned to the health officers and citizen committees in this area for the duration of the spring campaign.

Miss Martha E. Morkin, Adviser on Local Work, is devoting practically full time to the county-wide campaign in Chautauqua; and in Elmira, Medina and Lockport. Her services are also requested for campaign work in Cattaraugus County.

Toxin-antitoxin clinics began in Oswego March 24 where Mrs. Bessie P. Hanson, R. N., Adviser on Local Work, assisted in organization and publicity. She is also scheduled to cooperate with similar efforts in Gloversville, Watertown, and Saratoga Springs.

Miss Frances H. Meyer, R. N., has been assigned to assist in Little Falls, Herkimer and Ilion where diphtheria prevention work is now well under way.

Miss Ethel A. Grosscup, Adviser in Child Health Instruction, at the invitation of the health officers of Binghamton, Endicott and Johnson City, will devote approximately two months full time to organization and publicity work in those cities.

A million pieces of diphtheria publicity material—posters, leflets, placards, and special proclamations—have been made ready by the Association's State Committee on Tuberculosis and Public Health to supply the demands of the above localities.

High School Poster Contest

The second high school diphtheria poster contest, promoted by the Association's State Committee in cooperation with the State Education Department, closed April 1. The local judging of the posters will take place in April to select those to be submitted for the State prizes which consist of a $1,020 scholarship at Syracuse University for the boy student whose poster shows the most artistic merit and a $350 scholarship to the boy or girl whose poster is selected for use in the State campaign and cash second and third prizes.

Diphtheria Rate Lowest Ever

The State Department of Health has announced that diphtheria cases and deaths during January, 1930, were lower than ever before in the history of the State. The first four years of the enterprise look back on a case rate for 1929 or 40 per 100,000 which is 48 per cent less than it was in 1925, the year before the campaign began, and a death rate of 3.4 reduced by 43 per cent during the same period.

Many Cities With Clean Slates

A further indication that the practical eradication of diphtheria seems possible is the fact that there were 13 cities that had no diphtheria cases and 20 cities that had no deaths during 1929. Three counties reported no cases and a total of 26 counties went through the year without a single death.

Diphtheria, indeed, is "the next to go."—*S. C. A. A. News*, April, 1930.

According to *Le Siecle Medical*, Paris, Dr. Jean Charcot, son of Professor Charcot, has been elected to the French Academy of Medicine. *Le Siecle Medical*, by the way, is probably the only medical journal which is published in the form of a newspaper and it is growing rapidly.